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AEROSOL AGE

THE MAGAZINE OF PRESSURE PACKAGING

IN THIS ISSUE:

- Nylon Aerosol Containers
- Aerosols in Surgery
- Avon's New Cologne Package
- Vinyl Chloride Propellant
- Car-Matching Paints
- FTC Cites Antibiotic Makers

September, 1958

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SEPTEMBER, 1958 VOL. 3, No. 9

AEROSOL AGE

The magazine of pressure packaging

THIS MONTH'S COVER

Avon's "To a Wild Rose" is one of the first aerosol packages to be developed by a major cosmetic marketer in which an effort was made to copy the conventional (non-aerosol) package. To complete this unique new package, Avon worked closely with VCA, valve manufacturer, and Wheaton Plastics, supplier of the plastic-coated glass bottle. A story on the development of this package begins on page 22.

Feature Articles

NYLON CONTAINERS READY TO VIE FOR PERFUME MARKET..... 16

AEROSOLS IN SURGERY..... 20

AVON DEVELOPS UNIQUE NEW AEROSOL PACKAGE..... 22

VINYL CHLORIDE—AN "IDEAL" PROPELLANT?..... 26
By Dr. Hans Kuebler

PLASTI-KOTE UNVEILS CAR-MATCHING AEROSOL PAINTS..... 30

AEROSOLS IN REVIEW..... 34

Departments

IN THE SPOTLIGHT THIS MONTH..... 8

CONVENTION CALENDAR..... 8

NEW PRODUCTS AND PACKAGES..... 23

CONSULTANT'S CORNER..... 33
By Robert A. Foresman Jr.

NEWS OF PRESSURE PACKAGING..... 40

EQUIPMENT, PROCESSES & BULLETINS..... 49

CUSTOM FILLERS AND PACKERS..... 57

NEW PATENTS..... 63

INDEX TO ADVERTISERS..... 67

OVER THE TRANSOM..... 68

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INDUSTRY CALENDAR

Sept. 7-12—American Chemical Society, National Meeting, Chicago.

Sept. 29-Oct. 3—National Hardware Show, Coliseum, New York City.

Sept. 30-Oct. 2—Joint Military-Industry Packaging & Handling Symposium, Washington, D. C.

Oct. 8-9—Society of Cosmetic Chemists, seminar, Barbizon Plaza Hotel, New York.

Oct. 13-15—Packaging Institute, 20th annual forum, Edgewater Beach Hotel, Chicago, Ill.

Oct. 14-16—Society of Industrial Packaging and Materials Handling Engineers, 13th Annual Exposition, Coliseum, Chicago.

Oct. 19-21—National Sanitary Supply Show, industry management seminar and trade show, Fairmount Hotel, San Francisco.

Oct. 20—Annual Sales Clinic of Salesmen's Assn. of the American Chemical Industry, Inc., Roosevelt Hotel, New York.

Oct. 20-24—National Safety Congress and Exposition, Industrial Safety Meeting, Conrad Hilton Hotel, Chicago, Ill.

Oct. 28-29—Northwest Garden Supply Trade Show, Portland, Oregon.

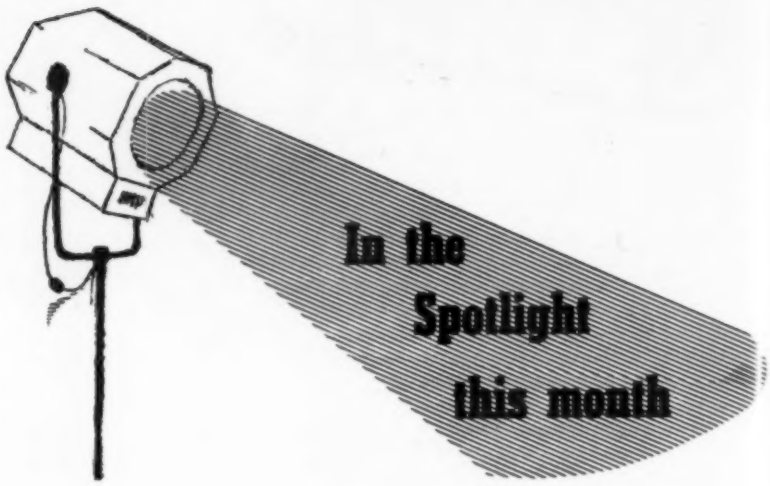
Oct. 29-31 — National Agricultural Chemicals Association, General Oglethorpe, Savannah, Georgia.

Nov. 13-14—Canadian Chemical Specialties Manufacturers, 1st annual meeting, Queen Elizabeth Hotel, Montreal, Canada.

Nov. 20—Society of Cosmetic Chemists, annual meeting, Statler Hotel, New York.

Dec. 8—Toilet Goods Assn., Scientific Section, Waldorf-Astoria Hotel, New York.

Dec. 9-11—Chemical Specialties Manufacturers Association, 45th annual meeting, Commodore Hotel, New York, N. Y.



• **Nylon Containers Ready to Vie for Cologne Market** . . . An exciting new container material, after years of experimentation, is readied for full scale exploitation by a new group of fabricators. Story with pictures, performance charts, etc., begins on page 16.

• **Aerosols in Surgery** . . . An important new use for aerosols—as a vital instrument in surgical operations and post-surgical treatment—is revealed in an article in the **British Medical Journal.** The findings of this article, called "one of the most important in all aerosol pharmaceutical literature," are thoroughly discussed on page 20.

• **Avon's new Cologne Package** . . . The first package by a major marketer to intentionally copy a non-aerosol package is reported on fully on page 22.

• **Vinyl Chloride as an Aerosol Propellant** . . . Though one of the oldest of all aerosol propellants (it was first mentioned by Erik Rotheim in the 1930's) vinyl chloride has hitherto had relatively little use as a propellant. Some of the known facts about its flammability, compatibility characteristics, and potential in important product types are discussed by a leading German chemist on page 26.

• **Plasti-Kote Unveils New Car-Matching Paint Line** . . . What are the factors that prompt a leading aerosol paint marketer to go into a line of car paints? How can the marketer make this product appealing to the potential customer? These and other questions are answered in an article on Plasti-Kote's new line on page 30.

EDITORIALS

Propellant Terminology . . .

A trend has developed among propellant producers in England that, if carried any further, could add even more confusion to the propellant terminology situation. Both Imperial Smelting Corp. Ltd. and Imperial Chemical Industries Ltd., have adopted their own distinctive nomenclatures for their propellants, and each of these is considerably different from the more-or-less universal system used in the U. S. and in all other countries with pressurized packaging industries.

Since it would be hard to deny that each of these numbering systems has real logic, at least from the standpoint of the technical chemist, we won't attempt to argue that point here. Our position is, however, that there was *no* real necessity for the introduction of one new numbering system, let alone two. The English aerosol fillers (and those in Australia, South Africa, and the rest of the British Commonwealth to which these companies will probably export their propellants), will be faced with the difficulty of translating their own filling requirements to the three different numbering systems. All of the technical data that has been accumulated over the past ten or eleven years will have to be translated before it can be used accurately with the newer named propellants. In fact, the situation could become analogous (on a considerably minor scale) to that which exists with the use of the metric system in the U. S., England, and other countries with other measurement systems.

Something of the same situation exists in the spelling of the word "propellant" (propellent), but this has more of the element of humor about it. In fact, we even have heard one tongue-in-cheek suggestion that "propellunt" be adopted as one sure-fire alternate that might be acceptable to all the major propellant manufacturers!

However, with a word of this sort there can be no misinterpretation of its meaning—no matter how it is spelled. On the other hand, when the basic numbering system is changed, a whole new series of complications arises. There may also enter into the picture the fact that the filler with long experience with the older numbering system may be reluctant to undertake the necessary translation of the technical data he has prepared, over the course of years, for his filling operations. He will be hesitant about further complicating his own technical data, and may tend to "stick with" the propellant (or propellants) he has been accustomed to using. Therefore, the decision to re-number a complete line of propellants may also be an unwise one from a competitive standpoint.

It might be argued, with some justification, that the filler will have to make only one translation of his figures; that is, that he must only substitute one propellant number for another. In the case of a private label filler with one or two products this is true. But how about the large custom filler with 25, 50, or even 100 different products—some of them packaged for customers with specific propellant preferences? His propellant terminology problem (and, to a certain extent, his formulation worries) are multiplied three fold.

But, as was pointed out above, a chief difficulty will come in reinterpretation of the published aerosol technical data that has been piling up for the past decade. Much of this material contains sample formulations, discussions of the roles of the various propellants, and other important information that will have to be revamped before it can be used accurately. The worst part of all this is that all these complications weren't at all necessary.

At the Packaging Show in May, most of the new suppliers of nylon containers displayed their wares at the DuPont Polychemicals' exhibit.

THE nylon aerosol container appears to have finally "arrived" after a number of fits and starts and several years of experimental and developmental work by half a dozen companies. Two good indications of this are the impressive display of nylon containers at the New York Packaging Show in May and the recent announcement that Park & Tilford, with its "Stay-Put" hair spray, would be the first to market an aerosol product in a blow-molded nylon container.

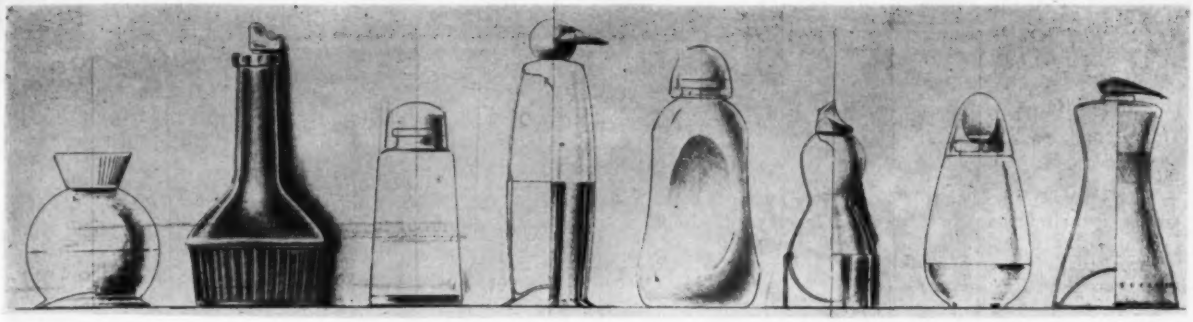
During much of the last three years E. I. du Pont de Nemours & Co., Precision Valve Corp., and the National Plastic Products Co. have done extensive developmental work with such problems as performance studies, blow and spin molding techniques, permeation and compatibility studies, consumer acceptance, and the other myriad problems associated with the introduction of an entirely new container material for the aerosol industry. This spring the Bernadin Bottle Cap Co., Evansville, Ind.; A. H. Wirz Inc., Philadelphia; American Plastics Co., Independence, Mo.; and United Plastic Industries Inc., Vassar, Mich.; joined National Plastic Products Co. (Odenton, Md.) as suppliers of nylon aerosol containers — and all of these companies have their own models of a nylon container in some stage of advanced development.

An analysis of all these factors would seem to indicate that the nylon container — the first all-plastic container to reach commercial importance in the U. S. aerosol industry — is ready to become a major factor in pressure packaging of cosmetics.

As has been pointed out in a previous article in this magazine ("Nylon Opens a New Era in Aerosol Containers" by Robert Abplanalp and Joseph Pizzuro, *Aerosol Age*, June, 1957) the industry has long felt the need for a suitable container for packaging perfumes, colognes, deodorants, anti-perspirants, and other products that cause corrosion of metal parts. Glass and plastic coated glass has been one obvious solution to the problem, but as Messrs. Abplanaly and Pizzuro point out, "plastics, however, seemed to offer the broadest field for further research, being light in weight, inert, and lacking the potential breakage hazard."

Because of its rigidity, light weight, and high resistance to chemical attack, and *in spite of* the relatively high cost of the raw material, nylon was selected as the best of the plastic materials available. The high cost is offset at least partially by the relative strength and moldability of the material, which permits the manufacture of containers with a wall thickness of as little as .025 inches.

SINCE DuPont manufactures compositions of nylon that are well-suited to the fabrication techniques necessary for aerosol bottles, that company took the lead early in developmental work in the container field. Instituting the name "Zytel" to replace the generic term for its polyamide group of plastic resins, DuPont developed two compositions ideally suited for aerosol containers. These are "Zytel 101", a high-melting nylon with excellent abrasion resistance, stiffness, and impact strength, designed for general purpose injection moldings; and "Zytel 42", a



(Some of Du Pont's Aerosol Container designs)

Nylon Containers Ready To Vie For Perfume Market

relatively new extrusion-grade composition with a higher viscosity and a slightly higher molecular weight.

In order to make these compositions available for aerosols, it was necessary to perfect appropriate fabricating techniques. These techniques were blow molding (for "Zytel 42"), and spin-sealing (for "Zytel 101").

Many years before DuPont set about adapting it to nylon bottles, spin-sealing had been practiced in the plastics industry. The goal was to refine the technique of sealing two injection-molded halves to make a bottle which would exhibit absolutely no leakage under aerosol pressures. The seam at which these two halves are joined has been the critical factor in the success of the nylon aerosol bottle, since this seam at first exhibited some leakage with certain aerosol formulations. However, presently developed spin sealing methods appear to have overcome this weakness, and the seams now made appear to be practically sound for pressure packaging. In fact, DuPont reports that spin sealed bottles of "Zytel 101" do not exhibit leakage under pressures even as high as 500 psi.

In the spin-sealing operation, one injection-molded section is held stationary, while the other is spun against it. Contact velocities from five to 25 feet-per-second and contact pressures of about 350 psi are used. The melting phase of the welding cycle, ranging from one-quarter to two seconds, is maintained only long enough to insure that all contacting surfaces are melted or coated with a layer of melt. When this is accomplished, the relative motion of the contacting surfaces is stopped by means of a braking mechanism and the contact force is maintained to allow the melt to solidify under pressure. This "cure time" (which lasts from one to four seconds in the case of a bottle with a 1/8th inch wall at the joint) prevents the formation of voids and pores due to the shrinkage of the molten plastic as it cools.

The braking of transition phase is of considerable importance. Since the transition from the melt-generating phase to the weld-curing phase is quite rapid, the thin film of melt cannot be allowed to solidify prematurely and be sheared before the motion of the contacting parts is completely halted. Thus the use of a braking mechanism.

DuPont laboratories have been devoting considerable attention to the blow molding of bottles of "Zytel 42". For this it was necessary to adapt techniques used for the blow-molding of polyethylene to the fabrication of "Zytel". Several factors were of importance in this technique, the major one being close temperature control.

AS HAS been indicated previously, a major consideration in getting the bottles ready for commercial production has been completion of the various performance tests necessary to convince the aerosol packager of the desirability of the container for his particular product.

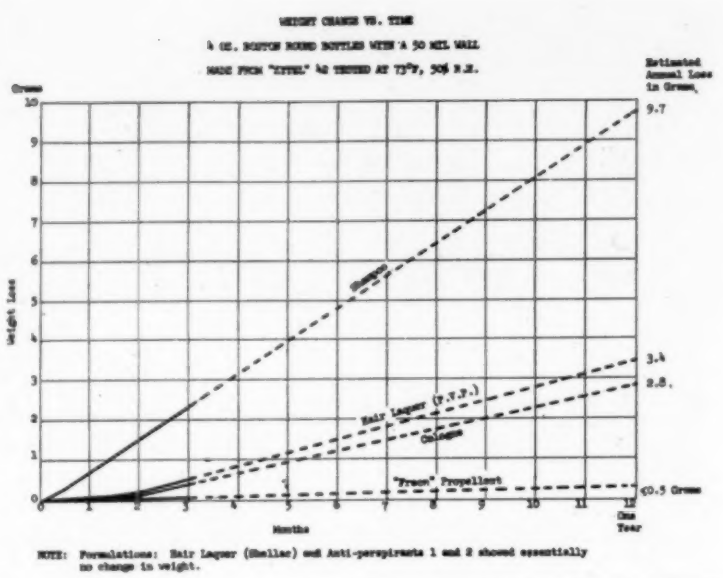
In tests to determine burst strength, short-time burst strength of bottles

Some of the production containers now ready for packaging. From left: United Plastics, National Plastics, Bernardin, and the last two are being made by A. H. Wirz.

blow-molded of "Zytel 42" averaged 300 psi at 70°F., or three times the maximum pressure encountered in normal low-pressure aerosol service. (DuPont uses 25 psi at room temperature and 100 psi at 130°F. as standards for normal service).

For colognes, perfumes, hair sprays, etc., and the other products considered ideal for this type container, permeation becomes a highly important factor. DuPont and Precision Valve have both conducted extensive permeation studies for a wide range of product types, but both caution that prospective users should "test each candidate formulation for a minimum period of three months in order to establish not only whether weight changes due to permeation are acceptable, but also whether any adverse changes occur in the formulation."

Figure 1. shows the results of three months' tests on shampoos, hair lacquer and cologne by DuPont's Polychemicals Department. The solid portion of the graph line depicts the results after three months, and the dotted portion of the line is the estimated change in weight after one year (obtained by extrapolation).



NOTE: Formulations: Hair Lacquer (Shellac) and Anti-perspirants 1 and 2 showed essentially no change in weight.

DuPont's statement covering the test findings is as follows:

(1) The curve as shown for the shampoo is substantially correct.

(2) For the cologne and for the hair lacquer with PVP, an insufficient number of test bottles were retained after three months, and the results are not considered reliable.

(3) The hair lacquer with shellac, after 250 days, shows a net weight loss of only 0.3 grams. The two antiperspirants have shown a consistent small gain in weight.

This is attributed to the hygroscopicity of the absolute alcohol, in the case of the hair lacquer with shellac, and of the aluminum salts in the case of the two antiperspirants. These hygroscopic ingredients tend to absorb atmospheric moisture through the walls of the container to offset losses of ethanol in the other direction. For this reason, it may be well to use absolute alcohol instead of 95% ethanol, in formulating alcohol-based products for packaging in aerosol containers of "Zytel" nylon resin, in order to minimize net weight losses.

"As indicated on the graph, the permeation studies were made on bottles of "Zytel 42". The results are considered equally valid for "Zytel 101" since finished products made from either resin are virtually identi-

TABLE I

PERSONAL PRODUCT FORMULATIONS USED IN AEROSOL BOTTLE TESTING

	Grams per Bottle (4 oz.)	Wt.%
1. COLOGNE		
Ethanol, 95%	32.3	30
Perfume Oil*	0.2	
"Freon" 12-114 (20/80)	75.6	70
2. SHAMPOO		
"Duponol" WA Dry	12.9	
Distilled Water	68.1	91
"Freon" 12-114 (20/80)	8.1	9
3. HAIR LACQUER (Shellac)		
Ethanol, absolute	25.8	
Shellac	2.3	25
Perfume Oil*	0.1	
"Freon" 12-11 (30/70)	84.3	75
4. HAIR LACQUER (PVP)		
Ethanol, 95%	20.3	
Polyvinyl Pyrrolidone	2.3	20
Perfume Oil*	0.1	
"Freon" 12-11 (30/80)	91.4	80
5. ANTI-PERSPIRANT #1		
Ethanol, 95%	30.6	
Aluminum Chlorohydroxethylate	20.4	50
Perfume Oil*	0.5	
"Freon" 12-114 (20/80)	51.5	50
6. ANTI-PERSPIRANT #2		
Ethanol, 95%	30.6	
Aluminum suffocarbolate	20.4	50
Perfume Oil*	0.5	
"Freon" 12-114 (20/80)	51.5	50

*Perfume Oil: New Mown Hay #6, Fritzsche Bros. Inc., New York

The two new containers of A. H. Wirz & Co. will both employ metallic caps. As shown in the photograph, different colored nylon components can be joined at the main seam to give multi-colored containers.

cal in chemical and physical properties. These results, however, are not necessarily applicable to any other type of polyamide resins."

Precision Valve's tests, conducted with "Zytel 101" for a period of one year (and shown in Table II) indicated that there can be a permeability problem with water-based (or partially water-based) products when "Zytel 101" is used for the container material. However, when the wall thickness was increased to .050 inches, a considerable reduction in permeability was effected.

Messrs. Abplanalp and Pizzuro, in their June 1957 article, conclude: "We feel that it can be concluded that containers of "Zytel 101" are best suited for alcohol-based products, but can also be succesfully used with water-based products, or water and alcohol products. However, if the particular water-based product appears to give excessive losses, "Zytel 31" (still another DuPont resin) can be succesfully used as the container material."

THE potential market for nylon aerosol containers would appear to be large. A recent independent market study conducted for DuPont by Daniel Starch and Staff showed that only two years after the introduction of aerosol colognes in 1953, volume had reached $19.3 million in sales, or 36% of the total domestic cologne market for 1955. From this DuPont concludes: "The data indicates that in 1965 the dollar volume for aerosols will be $58 million or 73% of the domestic cologne market at that time. Markets for other personal products should grow in similar fashion, and nylon containers are expected to share in these markets."

Besides earlier difficulties with spin sealing and molding techniques (and generally insufficient data on permeability and bursting strength) — both of which have been corrected — the major drawback to wider acceptance of the nylon container by the industry has been the relatively high per-unit cost. The stock models of the "Zytel" containers in a production status currently run between 15 and 24 cents for a bottle of three and a quarter ounces. (The higher of these quotations is for a metallized bottle with a chrome finish). However since late 1956, when the nylon development was first announced, the nylon-tinplate differential has been gradually narrowing, and tinplate containers are currently running between five and seven cents (depending upon the size and quantity ordered).

However, for the type of cosmetic or cologne product market in which the nylon container will be best suited, the price factor may not be as important as previously believed. Robert Mattair writing in *Aerosol Age* for August 1957 ("DuPont Surveys Indicate the Consumer Will Pay Premium Price for Aerosols") reported: "The Politz study asked if men and women would pay either a 15-cent or a 30-cent premium for personal products in aerosol containers of a rigid, eye-appealing, nonbreakable plastic, such as "Zytel"

(*Continued on Page* 56)

TABLE II

Product	Formula	Weight Losses 1 Mo.	2 Mos.	3 Mos.	6 Mos.	1 Yr.
Shave Cream	90% Concentrate 10% Freon 12-114 (40-60)	0.22g.	0.77g.	1.32g.	4.21g.	8.13g.
Shampoo	90% Concentrate 10% Freon 12-114 (40-60)	0.13	0.55	1.04	4.25	8.87
Hair Lacquer	30 % Concentrate 70% Freon 11-12 (65-35)	0.08	0.10	0.09	+0.06	0.29
Anhydrous Alcohol Cologne	50% Concentrate 50% Genetron 101	0.09	0.11	0.09	+0.11	+0.10
Anhydrous Alcohol Cologne	50% Concentrate 50% Freon 12-114 (20-80)	0.05	0.05	0.01	+0.35	+0.44
95% Alcohol Cologne	50% Concentrate 50% Freon 12-114 (10-90)	0.05	0.10	0.12	0.87	3.00
Water-Alcohol Deodorant Aluminum	70% Concentrate 30% Genetron 101-320 (30-70)	0.05	0.09	0.12	0.79	2.85
Chlorohydrol Antiperspirant	70% Concentrate 30% Freon 12-114 (40-60)	0.04	0.05	0.08	0.10	2.58
Room Deodorant	25% Concentrate Freon 1-12 (50-50)	0.05	0.04	0.06	0.12	0.16
Control		0.08	0.08	0.07	+0.01	0.07

Field Condition Test Results of Various Aerosol Products Packed in 0.050" Walled Zytel 101 Containers

TABLE III

Ingredient	Weight Losses 1 Month	2 Months	3 Months	6 Months	1 Year
Freon 11	0.08g.	0.14g.	0.13g.	0.15g.	0.38g.
Freon 12	0.10	0.14	0.15	0.03	0.27
Freon 11-12 (50-50)	0.06	0.10	0.11	0.15	0.23
Freon 114	0.04	0.08	0.08	0.04	0.20
Freon 12-114 (40-60)	0.04	0.06	0.05	+0.09	0.03
Genetron 101	0.07	0.12	0.14	0.14	0.30
Genetron 226	0.04	0.07	0.07	0.00	0.11
Genetron 320	0.05	0.07	0.07	0.05	0.25
Genetron 226-320 (50-50)	0.09	0.15	0.14	0.12	0.30
Control	0.05	0.08	0.07	0.05	0.06

Field Condition Test Results of Propellants Packed in 0.050" Walled Zytel 101 Containers

Aerosols IN SURGERY

An important British medical article reveals new techniques, and new possibilities for aerosols in normal surgical and post-surgical procedure

THE use of aerosol antibiotics in surgical practice could provide an important means of reducing infection in elective surgical operations, and possibly throughout hospitals. This is the conclusion of an article in the June 7 issue of the *British Medical Journal*, which may be interpreted as one of the most important medical articles on aerosols published to date, and one which could open up the surgical and post-surgical care field to aerosol therapy.

Entitled "Application of Antibiotics (Polybactrin) in Surgical Practice, Using the Aerosol Technique", the article was written by Dr. R. Myles Gibson, M.D., M.Sc., F.R.C.S. Ed., registrar of the Department of Surgical Neurology of the Royal Infirmary, Edinburgh.

The problem of infection in surgical practice has become a serious one in both American and British hospitals. In the majority of cases, the source of this infection is a type of *Staphylococcus aureus* relatively resistant to both penicillin and to the broad-spectrum antibiotics. This type of infection has been marked by a rising curve of fatalaties in U. S. hospitals, particularly among newborn babies and (in less publicized but probably with equal frequency) among post-surgical cases. This infection has appeared in as many new hospitals with modern equipment as it has in older hospitals with obsolete or otherwise outdated equipment. In a smaller number of cases the cause of the infection is *Pseudomonas pyocyanea*, another resistant strain.

Dr. Gibson, in his article, makes special mention of this growing incidence of infection, and declares: "The high incidence is so far confined to in-patients, but there is some evidence that penicillin-resistant infections are also appearing with greater frequency among out-patients (Rees *et al)*. Persistent, hardy, and adaptable potentially pathogenic staphylococci are ubiquitous in the hospital environment and continue to produce strains resistant to the antibiotics most often used in clinical practice.

"Many factors and circumstances are responsible for surgical sepsis. Busy operating theatres in use throughout the 24 hours, defective or outdated theatre and dressing-room ventilation systems, nasal carriers of resistant bacterial strains commonly found amongst hospital staff, unreliable methods of skin decontamination, the use of local vaso-constrictor solutions (adrenaline) for infiltration of the wound area; breaches of surgical technique. All these, in different places and in different circumstances of varying importance, may combine or permutate to increase the risk and incidence of surgical infection. In the last analysis, however, surgical infection is caused by the implantation of pathogenic organisms by aerial contamination, droplet spread, or direct surgical implantation into the exposed wound at the time of operation. . . .

"... One method of tackling the problem is by the use of topical antibiotics, to destroy or combat the pathogens as they are, or may be, implanted in the wound at operation.

While 'asepsis' in the strict etymological sense is an unattainable ideal, the practical aim must be the minimal bacterial contamination of a 'clean' surgical wound.

"It is probable that local conditions adverse to combating infections (dead tissue, adrenaline ischaemia, operating-time, foreign-body implants) are reasonably constant factors when considered in relation to a series of 250 neurosurgical operations such as are reported below. The dosage of contaminating pathogens is the variable and decisive factor. Unless the contamination can be controlled in some way, the case for a topical antibiotic is rendered mandatory. If the desirability of such a topical preparation is granted, it is important that the chosen preparation should neither sensitize patients nor favor the emergence of resistant strains.

"For such a topical preparation a number of known antibiotics, too toxic for systemic use but with a wide range of effectiveness of action and negible tendency to increase resistance, may be considered. Polymyxin, bacitracin, and neomycin, which are poorly absorbed into the body from 'raw' tissue surface, have recently been prepared as an antibiotic triad ('polybactrin') for local use. The application of this combination on account of its relative insolubility and instability in aqueous solutions."

DR. GIBSON and his colleagues used the now well-known "Polybactrin" antibiotic powder spray, which was introduced by Calmic Ltd., Crewe and London, England, in late 1956. The product is equipped with a Norton "Vapsol" valve, and consists of a mixture of zinc bacitracin neomycin sulphate, and polymixin "B" sulphate in dichloro-tetrafluoroethane. Continuing with Dr. Gibson's article: "By this means the antibiotics can be dispersed evenly on any desired wound site. The high concentration and high bactericidal activity of the triad limits the risk of resistant strains emerging. This antibiotic triad has recently been used in a clinical trial for the prophlaxis of surgical sepsis at the Department of Surgical Neurology in the Royal Infirmary of Edinburgh. The price paid for sepsis in Neurological Surgery, in terms of mortality, morbidity, and bed utilization, may be great, and any practical steps to limit or minimize its incidence are valuable.

"...From a distance of eight to ten inches the projected antibiotic triad is directed into the wound, care taken to insure even distribution. In this trial the wound was sprayed at each wound layer encountered on opening and closing. For example, during craniotomy, the under surface of the scalp and the exposed pericranium were sprayed after reflection of the scalp flap; the bone flap, with its attached muscle, and the dura were sprayed when the bone flap had been elevated. On closure the order was reversed: firstly the dura, then the bone flap and muscle, next the pericranium, and under the surface of the muscle, next the pericranium and under surface of the scalp, and finally the wound edges, were treated after their approximation by deep galeal sutures.

"In the case of spinal operations the deep fascia and muscle were sprayed during the opening, and the muscle, deep fascia, and skin edges during their closure."

Dr. Gibson and his associates made a special study of 250 consecutive surgical cases over a period of approximately five months (using the "Polybactrin" aerosol spray in the techniques used described above) and then compared figures with 250 similar operations performed prior to introduction of the aerosol spray. These surgical operations included craniotomy with bone flap, craniectomy, prolapsed intervertebral disk, laminectomy, neck operation, multiple exploratory burr-holes, burr-holes with ventricular drainage, hydrocephalus operations, cranioplasty, and others.

FOR those cases treated with the "Polybactrin", the doctor writes: "In this series of 250 cases septic complications were encountered in three cases. In only one instance was it of major importance, and this was in a case of cranioplasty where there were predisposing factors to the development of infection. The patient was a young man who had suffered a severe head injury with compound depressed fracture two years previously. Two attempts at cranioplasty following his injury had been made, and both failed because of sepsis. On this occasion tantalum repair was attempted, but again the prosthesis had to be removed on account of wound infection.

"The remaining two cases were examples of minor sepsis — a small stitch abscess in a subtemporal decompression wound and a superficial infection in a neck wound of a baby on whom a ventriculo-jugular shunt operation had been performed for hydrocephalus. The onset of sepsis in this latter case was preceded by mechanical wound disruption due to cerebrospinal fluid collection and there was also present in the wound a foreign body — the shunt tube of portex rubber."

For the 250 surgical operations for which no "Polybactrin" was used, the incidence of infection was markedly higher. "The incidence of major sepsis in this control series affected 18 cases (7.2%). Five were cases of craniotomy with bone flap, and the management of their infective complication required wound reopening

(*Continued on Page* 61)

At right: The "Polybactrin" aerosol used in Dr. Gibson's surgical study.

Avon's Unique Cologne Package

a new package to approximate a non-aerosol is conceived by a major cosmetic firm

Marked similarity between aerosol package of Avon's "To a Wild Rose" and conventional package is shown in this photo. Aerosol unit in foreground has softer lines, no angles or corners, to assure equal distribution of pressure.

WHEN "To a Wild Rose" became a leading seller among aerosol-packaged colognes, its marketer, Avon Cosmetics Corp., New York, wasn't especially surprised. For this product enjoyed one basic advantage over other aerosol colognes: the pressured package is almost a duplicate of the conventionally packaged product. By designing an aerosol-package which duplicated its conventional container Avon was able to enlarge upon the sizable consumer purchasing group for the conventional product it had built up through the years. Immediate consumer identification of the package was achieved without the usually costly and slow consumer education usually associated with product repackaging.

Though in theory the whole idea of introducing an aerosol package that duplicates an established conventional product is an excellent one, it posed a number of technical problems for the suppliers of the major components: Valve Corp. of America Inc., Bridgeport, makers of the valve assembly; and Wheaton Plastics Co., Millville, N. J., suppliers of the coated glass container.

For VCA, the essential problem was to adapt its valve assembly to the round, rose-colored knob that capped the original package. The answer was to insert a standard VCA "B-8" glass bottle valve, with a mechanical break-up type actuator, as the knob. However the entire assembly and knob had to be adapted to a 20 mm. bottle opening, so that evolution of the final assembly was accomplished only through work with five separate models, each representing an improved step toward the finished product.

The first model had the actuator inside a plastic, pink-colored knob, and emitted the spray through an orifice recessed directly in the surface of the knob. The principal complication here was that the recess tended to interfere with distribution of the spray mist; and so a second model was molded. This had the orifice which was set in an external rose-petal effect extending slightly out of the knob. It permitted an effective distribution of the spray and at the same time created an interesting visual effect with its rose-petal actuator; but several

(*Continued on Page* 58)

Four stages of development of aerosol knob for "To a Wild Rose" cologne mist flank bottle fitted with the final choice. Positioning of valve orifice and development of moulding technique to eliminate surface markings were main problems confronting VCA engineers who developed the knob.

Najelle, a pressurized "miracle nail treatment" has been introduced nationally by Marcel Martine Ltd., New York, in a three-ounce can equipped with a Precision nitrogen valve. It is a non-acetone jelly, that can be used as polish remover, cuticle softener, and nail conditioner.

Gear Lube Spray is a new product of Acrolite Products Inc., West Orange, N. J. to protect open gears, cams, etc. It is said to be equivalent to three pounds of ordinary grease, and will retail for $1.95 for the 16-ounce container.

Anderol L-536 Rust Preventive, a product of Lehigh Chemical Co., Chesterton, Md., will retail for $2. It delivers a light film that in most cases does not have to be removed before use or final finishing.

Wildroot Cream-Oil has been introduced by Wildroot Co. of Buffalo in a nitrogen-charged American Can Co. aerosol can. The six ounce container carries a suggested retail price of 98 cents, and is said to hold a three-months' supply. Valve is by Precision Valve Corp., Yonkers, N. Y.

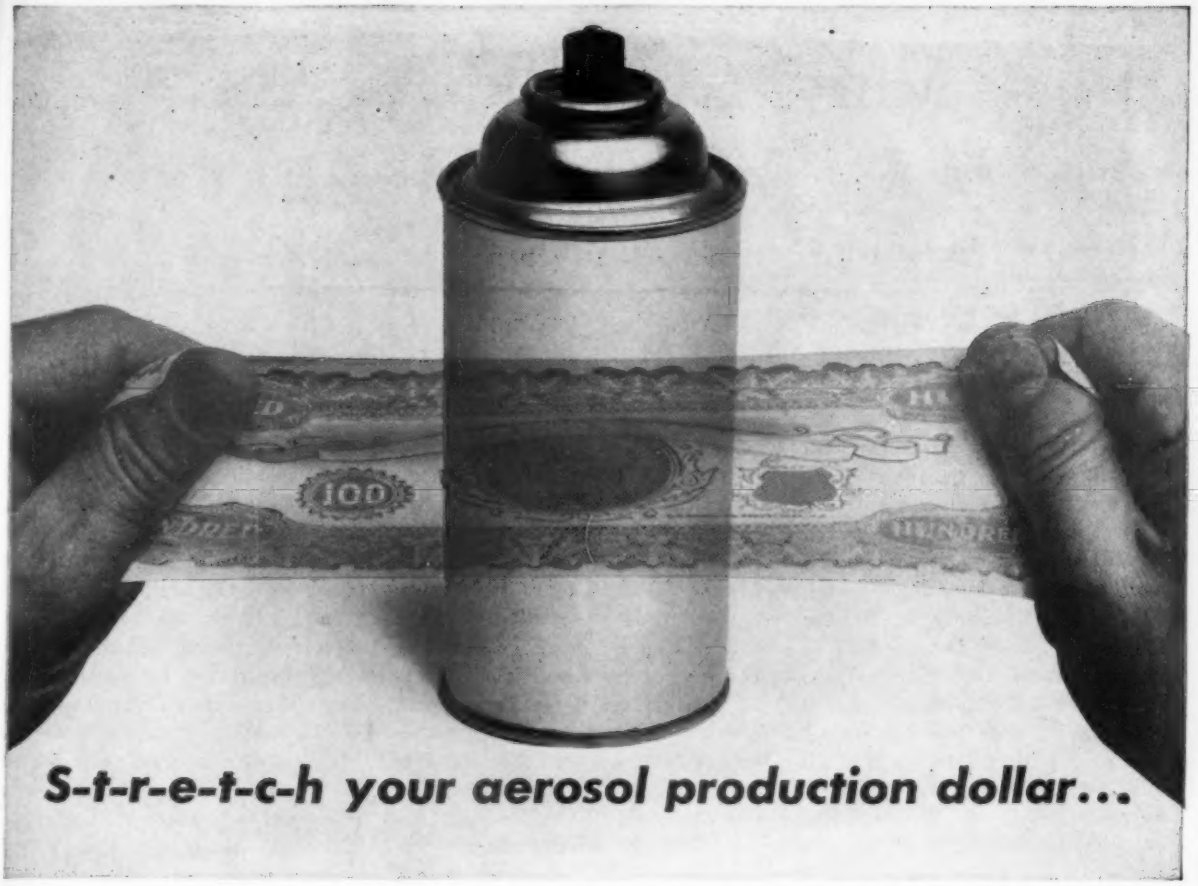
NEW PRODUCTS AND PACKAGES

Glamour Spray, a hair straightener and water repellent specifically for the growing negro cosmetic market, has been introduced by Marla Ann Products Co., St. Louis The formulation was developed by William Essbern, French research chemist.

Griffin Suede Renewer and **Allwite** are new aerosol products of the Boyle-Midway Division of American Home Products Corp., New York. each priced at 69 cents. The Allwite contains lanolin and a titanium factor to add to the formulation's whiteness.

Two new European products are **Piff,** a product of A/S Reckitt & Colman, Copenhagen, and **Spray Vetril,** by Brill, of Milan, Italy. Both use Risdon "Micro-Mist" valves, the Italian model made by Solfrene. I/S Nivea is the filler for the Danish product.

Spray Starting Fluid is a product of Spray Products Corp., Camden, N. J. in a Crown "Spratainer". It includes a lubricating agent, corrosion inhibitor, and compressed gas propellant with diethyl ether base. Strouse of Norristown, Pa. is the filler.



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Vinyl Chloride As An Aerosol Propellant

By Dr. Hans Kuebler
Rheinfelden, Germany

THE term "packaged energy" explains not only the function but also the appeal of the aerosol container. In modern practice, this stored energy comes not only from compressed, but also from liquid gases. As shown by German patent number 471,705,75 (issued Oct. 8, 1927 to Erik Rotheim of Oslo, Norway), the idea of the modern pressure package is not new to the post-war period. However, primitive filling methods and the lack of suitable containers hampered early development and probably account for the relatively minor use made of the patent.

Since then the solution of the technical problems has caused the development of the aerosol package into one of the most highly developed and most modern of all forms of packaging. Because of this success, it may appear a simple matter to load product and propellant into a suitable container and with this unit begin a lucrative business. The availability of relatively inexpensive small-capacity loading equipment tends to add to this misconception. But is aerosol loading really so simple? Are there not other factors which can make it a time-consuming, expensive, and risky undertaking?

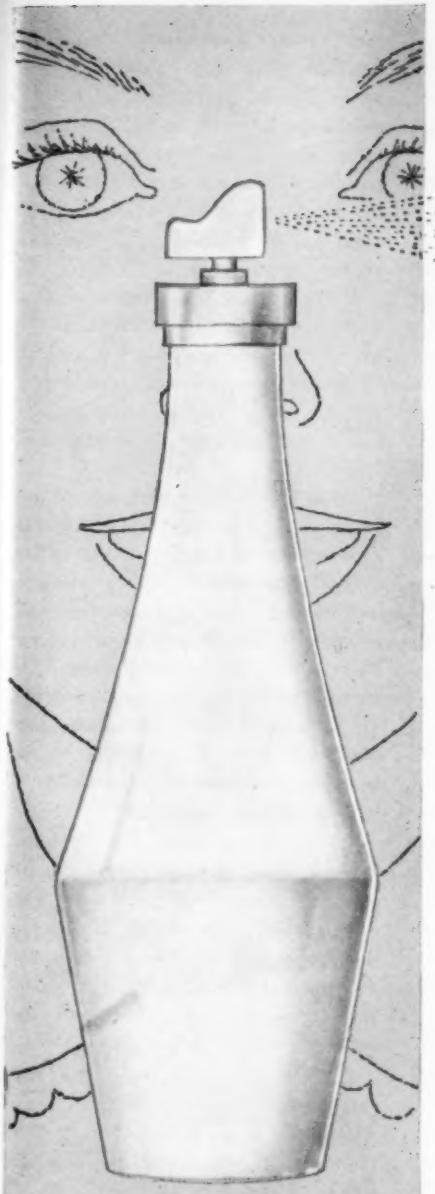
Anyone who has had anything to do with technical questions on aerosols, particularly contract loading, will testify that there is considerably more to it than meets the eye. Demanded is a great deal of loading experience with many different kinds of products, constant research and testing for corrosion, solubility, compatibility, and stability, and the working out of new formulations with corresponding changes in either the mixtures or percentages of propellants. The contract loader must also advise about container size and specification, analyze the fine points of which is the most suitable valve, and give advice about label text and colors. All of this work must be done according to the individual wishes and requirements of particular clients, each one different. The contract loader's laboratory must be equipped to take care of all kinds of technical and chemical problems, including the adaptation of essential oils and perfume essences to the aerosol process. Formulations thus worked out become the property of the client, a not insignificant item where the client can secure protective rights on perfume compositions.

ACCORDING to the exact (and now well-known) dictionary definition, an aerosol is a "production of minute solid or liquid particles so fine that they remain suspended in the air for long periods of time."

When a liquefied gas is employed as the propellant, the resulting spray (according to product or application) can be either very fine or quite coarse and the term "aerosol package" is often preferred to the more technical "aerosol". On the other hand, when nitrogen or other compressed gases are used as propellants for foams, toothpastes, etc., the term "pressurized package" would seem to be preferable. These definitions more realistically describe the two kinds of products and will be used in the rest of this article.

A chief consideration in the "ideal" aerosol is the "ideal" valve. This is the number one problem of all fillers and is made even more difficult by the fact that the most important requirements completely contradict each other. That is, the valve must be absolutely perfect and at the same time very cheap; for pressure loading it must have a quick gassing rate and at the same time a very slow discharge rate. These requirements pose the opposite requirements of high precision work and low cost, a dilemma solved only with a fully automatic production line. European valve production is currently on a manual basis with only visual inspection of the assembled valve. In a fully automatic production line (such as has recently been installed by several U. S. valve companies) human error and fatigue are replaced by reliable electronic controls. Valves thus assembled are as alike as "peas in a pod", and parts with even the smallest defect are automatically rejected. Thus one of the first requirements for the "ideal" valve would seem to be an automatic production and assembly line.

It is reported that in the U. S. about 95% of all aerosol packages ("pressurized packages" excluded) are filled by the cold method. In Europe, where pressure filling predominates, exactly the opposite percentage is the case. This leads to the often discussed question: Which is the "ideal" method of filling, cold or pressure? It would appear that the answer is: both. A filling station with a cheap source of cold energy and which does not require special refrigerating units or



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insulation will naturally prefer a cold line. However, if the lowered temperatures raise the viscosity of the product or, in the case of water-based products, freeze it, then pressure filling has to be employed. All "pressurized packages" (those that employ compressed gases) must be pressure-filled. Thus, the two filling methods complement each other. Each has its place and each its purpose, but in the final analysis (and from a purely theoretical point of view) it *does* seem a waste of energy to take a liquid gas at room temperature, lower it to around 40 to 50°C. in order to fill it into a can, and then put the can in a hot water bath (more energy) in order quickly to return it to the same temperature at which the process started.

THE "ideal" aerosol further concerns itself with the "ideal" propellant. Applicable are the methanes and ethane derivatives (fluorinated hydrocarbons) or propane and butane, all of which have their boiling points within a range of minus 30°C. to plus 20°C. In the Rotheim patent mentioned above, several different gases are referred to as being possibly suitable for propellant purposes, among these being: dimethyl ether (boiling point —25°C.), methyl chloride (boiling point —24°C.), methyl nitrate (boiling point —12°C.), iso-butane (boiling point —10°C.), carbon dioxide and vinyl chloride (boiling point —13°C.). The fluorinated hydrocarbons from methane and ethane (which are produced and sold in Germany under the name "Frigen") were unknown at the time of the Rotheim patent and consequently it contains no reference to them. Also, the regulations of the German Compressed Gas Industry Association which contain references to aerosol filling list as suitable propellants the fluorinated hydrocarbons, propane, butane, carbon dioxide, nitrous oxide, and vinyl chloride. For what we have termed "aerosol packages" only fluorinated hydrocarbons, vinyl chloride and propane-butane would seem suitable, since these are the only propellants liquid under pressure at room temperature. From a technical point of view vinyl chloride would seem particularly suitable as at 20°C. (room temperature it produces an internal pressure of about 2 atmospheres which is lowered with the mixture of active product. On release from the can, resulting gasification increases its volume 333 times and it is therefore particularly suitable for the production of fine micron particles for all space sprays.

It is surprising to hear the arguments, even among experts, sometimes advanced against vinyl chloride. Its slight odor, tendency towards hydrolysis and inflammability are usually the principal characteristics mentioned. Despite these minor objections its use as an aerosol propellant is on the increase. In *Aerosol Age* February 1958, appears an article: "Vinyl Chloride Finding Increasing Use in Japanese Aerosols". This article declares that in Japan successful use is being made of an oil gas (principally butane) and vinyl chloride mixture, as vinyl chloride reduces the ignition point of the butane. It is also observed that vinyl chloride's explosive effect is minimal, that it is much less toxic than methylene chloride, and that it is free from any lasting odor. Further, in the first bulletin of the German Aerosol Association, Frankfort, April 15, 1958, vinyl chloride is listed as an aerosol propellant. It is there mentioned that a U.S. chemical company, working together with a company in the Argentine, has a program to commence the manufacture of vinyl chloride expressly for use as an aerosol propellant.

Vinyl chloride is also spoken of as a suitable propellant for hair fixatives by Eberhard Obrocki in his article: "Perfume and Cosmetic Aerolsols" which appeared in the journal *Seifen-Oele-Fette-Wachse* of September 25, 1957.

What then *are* the particular properties of vinyl chloride which make it rank among the ideal propellants for aerosol packages? I have already written on this subject in two previous articles ("Die Aerosolverpacking in Deutschland" in *Riechstoffe und Aromen*, June 1955, and "Vinylchloride als Treibmittel für Aerosol-Dosen" in *Deutsche-Farben-Zeitschrift*, December 1956. The principal points may be summarized as follows:

1.) Vinyl chloride produces an "ideal" pressure for all true aerosol products without the mixture of any other gases. By observing proper mixing proportions between active product and propellant, a constant pressure is maintained in the container until all product is discharged.

2.) Vinyl chloride is an excellent solvent for lacquers and perfumes, with better properties in this regard than are possessed by most other liquid propellants.

3.) Being odorless, vinyl chloride is very easily scented for cosmetic aerosols.

4.) The ignition point of vinyl chloride lies between 545 and 565°C. The risk in using this slightly inflammable gas is minimal, since aerosols which employ a completely non-flammable propellant often are used for quite flammable products, resulting in largely the same kind of risk. The millions of aerosol packages pressurized with vinyl chloride in daily use for many years past attest to the safety of this package when properly used according to label instructions.

(*Continued on Page* 59)

Vinyl Chloride in the U. S. . . . Editor's Note

Except for experimental work, vinyl chloride has had little use as a propellant in the U.S. aerosol industry. This has been due mainly to the inflammability of the propellant, which in most U.S. industrial areas, would by local regulation dictate the installation of explosion-proof manufacturing areas and filling equipment. This installation would be relatively costly, since it would have to extend to floors, overhead and wall wiring, storage facilities, and pressure filling units (in some cases, explosion-proofing a small pressure unit, would add $500 to its cost). Since the price differential between the conventional fluorinated hydrocarbons and vinyl chloride is considerably less in the U.S., than in Europe, Japan, and South America (where there has been considerably more work done with this propellant) and the additional cost of installing explosion proof manufacturing units is so huge, these factors have worked together to reduce even experimental use of this propellant by the U.S. industry —The Editor.

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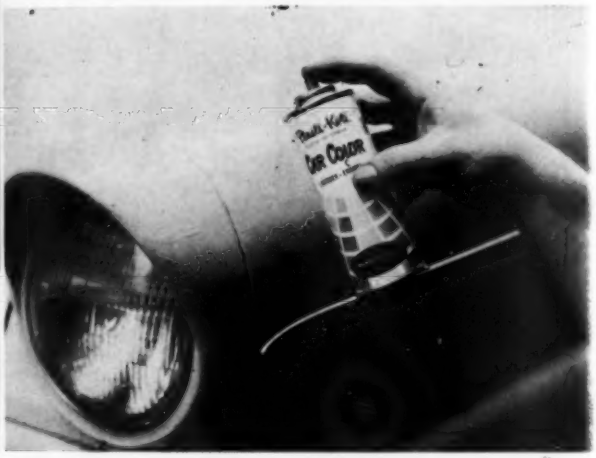


In Plasti-Kote's new line, the color of the overcap indicates the color of the paint. Below: the product in use.

Plasti-Kote Introduces Line of Car-Matching Paints

A COMPLETE line of aerosol lacquer enamels in colors matching the 1957 and 1958 Ford, Chevrolet, and Plymouth automobiles has been introduced by Plasti-Kote, Inc., Cleveland, a leading aerosol paint manufacturer.

Called "Car Color" paints, the new aerosols are being marketed in eight-ounce cans with special large overcaps painted with color identification of the shade in the can and imprinted with stock number and color. To further guide the user in case the cap is misplaced, the cans are also color-coded on the bottom.

The new product line is reported to contain one-third more product than any other similar item on the market, and, in addition to the usual push-button ease of application, it is said to be especially fast to drying. The paints reportedly can be used on any surface.

Packing will consist of six cans of a color in a newly-designed flip-top box. These cartons can be used for display purposes, since there is identification on two sides of the carton for efficient handling for stocking purposes.

Since a prime marketing outlet for the product will be car dealers, Plasti-Kote will make available special counter merchandising display assortments designed for Ford, Chevrolet, and Plymouth dealers. These counter displays will feature 36 cans of the most popular colors for each of the three leading makes of cars. The new line of matching car colors will retail for $1.69 each.

According to Elias Shapiro, Plasti-Kote vice-president, the introduction of this new line of paints was prompted by the spiraling growth of all types of aerosol paints. "This growth," he declared, "has been mainly dependent upon education of the public to the fact that paint *is* available in this easy-to-use spray package. An example of how successful this program has been is the phenomenal jump in volume of aerosol paints, from nothing in 1947 to 35 million cans packaged and sold in 1957.

"The prominent paint companies who disparaged the idea, termed spray a 'fad', and otherwise minimized its importance," Mr. Shapiro continued, "have suddenly realized that the total gallonage involved has become an important factor in the overall paint field, and nearly all of them are now marketing some type of spray paint. Since this is not an easy product to package, with a few exceptions these firms are not packaging their own products, but instead are relying on aerosol paint suppliers who have years of experience in developing a trouble-free package.

"Where important chain operators, distributors, and retailers were content with only a few colors not many years ago, they have become convinced that in order to enjoy the full benefits of the potential market, they have to stock, show, and make available a more complete line.

"This trend has brought a need for

(*Continued on Page* 59)

Consultant's Corner

by Robert A. Foresman, Jr.
Aerosol Consultant
Philadelphia, Pa.

Formulation Quality — The Key To Acceptance

PERHAPS it is a reflection of the overall slump in the economy, a reflection of increased sophistication of aerosol users, or an indication of an actual letdown in formulation quality, but on a number of occasions over the past few weeks I have run across the comment that some particular product has been unsatisfactory, and that the disgruntled user will not repeat with that particular item.

This would be serious enough if the loss of attraction in each case resulted only in the particular brand being damaged; but unfortunately, whole classes of products may be condemned and not infrequently *all* aerosols may suffer at the hands of the unhappy consumer.

These formulation failings may stem from a number of things. Among them are failure to function uniformly (as the product can and should), failure of the product as originally formulated to perform its function, irritation and aggravation incident to unpleasant side effects, discomfort and/or damage from the primary application of an improperly formulated product; or, finally, dissatisfaction with aerosol dispensing of a product which is basically unsuited for this type of packaging.

Emulsions that are too wet or too dry, or that are unstable in the container, are a potent source of irritation. These are especially susceptible to formulation inadequacies or excessive tolerances in gassing when foams are in question. Propellant levels are usually very critical for foams and it is not unusual for propellant levels to fluctuate rather greatly percentagewise, and frequently to be adjusted at too high or too low a level in original concept.

Surface sprays that allow excessive "cloud off" of vagrant material are probably one of the major sources of dissatisfaction. Hair sprays, paints, topical pharmaceuticals, perfumes, belt dressings, lubricants, rust preventatives and the like, are all susceptible to this and it is no exaggeration to say that the unpleasant side effects of such aerosols could conceivably cause abandonment of their use (by individual consumers).

PROPER propellant adjustment for topical products is of course simply another facet of the foregoing, but here there are one or two additional problems. The first is temperature. A popular misconception among aerosol formulators is that to avoid chilling the skin, the approach should be to use more high boiling propellant (such as propellant 11 or 114) in a formula and cut down on the low boilers such as propellant 12. The very opposite is true, since the chilling effect of a spray on the skin results primarily from the evaporation of wet propellant from the surface of the skin and the way to avoid this is to vaporize the propellant *before* it can be deposited. Another effect that can develop in personal products or topical medicinals is a chemical burning sensation caused by certain propellants when deposited on the skin — especially methylene chloride and propellant 11. The only way to overcome the problem is to eliminate them as wet deposits on the skin, even though in a given case the chilling by evaporation, mentioned earlier, might be tolerated or even desirable.

One of the most important sources of aggravation among aerosol users occurs when products are completely incapable (or only marginally capable) of performing their announced function. Insecticides that do not kill insects, shave creams that offer poor shaves, hair lacquers that do not hold the hair in place, paints that do not cover, shampoos that turn the hair stringy and unmanageable, sun tan preparations that do not protect the skin, perfumes that do not last, and so on, are all examples of what can be wrong with aerosols that are not properly formulated. In some cases actual active material compounding may be faulty, and improvement must start right at the beginning. In other cases propellant ratios in relation to active material may be wrong, and in still other cases the choice of propellant blend may be wrong. Also it is not unusual for all three conditions to exist together, at least to some extent.

In the field of soluble and compressed gas propellants (as differentiated from the liquefied gases), careful formulation is especially important. It is not unknown for a product to perform well on initial packaging, but gradually to decline in performance as storage time increases. This can occur in a number of ways: by slow dissolution of the gas in the active material, resulting in lower pressures; by reaction of active material with the gas; by change in viscosity of the active material on standing so that original pressure requirements of the package are no

(*Continued on Page* 56)

AEROSOLS in review

Novel New Poultry Product Developed in England

THE July 12 issue of *Poultry Farmer*, English agricultural paper, describes the development of "Spray-Mite", an insecticide for chickens that stops them from fighting or pecking and at the same time has a healing effect on any wounds. The product was developed by H. E. Helman and Co. (Insecticides, Ltd., Meopham (Kent)) and is presently being distributed through a network of 340 agents and 2750 sub-agents throughout the British Isles.

The *Poultry Farmer* article declares: "Mr. Helman keeps 2,000 head of growing stock, all basic breeds crossed with Indian Game to get potential fighters. In one test 100 hens were kept in a 25-bird cabin for five months. Treated with 'Spray-Mite', they suffered no ill effects and were remarkable for their docility.

Mr. Helman claims that treatment with 'Spray-Mite' entirely eliminates the need for de-beaking. One of his first experiments, he said was with 2,000 point-of-lay pullets in a 1,000-bird DL laying house. A control batch of 100 birds were de-beaked and the rest were treated with 'Spray-Mite'. There was no pecking or cannibalism. After the birds were removed from normal conditions, his observations revealed that the de-beaked birds spent five to ten minutes longer on the nest, and that they wasted 2¾ cwt. of feed in three months because, he said, they couldn't eat or drink properly. They also wasted energy because they went to the feeding and watering troughs more often than the normal birds.

At the end of the experiment it was found that the de-beaked birds were 1¾ pounds lighter than the others. As a result of this experiment and the others described, the periodical concludes that the space-per-bird can be reduced to nine square inches if they are treated with the new aerosol product.

•

THE June 5 issue of the *New England Journal of Medicine*, which published the original article by the St. Louis doctors that touched off the hair spray controversy, has something further to say about aerosols in an article discussing the outbreak of the lung disease mentioned above. In a review of possible causes of the disease, the *Journal* says:

". . . Moreover, innumerable new volatile solvents and plastics have been introduced in recent years. The use of aerosols and dispersing agents — in insecticides for example — has enormously increased. . . . In other words, the new disease may be a penalty for the convenience of modern living. . . ."

•

ANOTHER consumer publication, this one a newsletter called *Consumer Bulletin*, has taken note of the aerosol hair spray question in its July issue. In a paragraph headed "Inhalation of Some Hair Sprays May Cause Lung Damage", the brief article outlines some of the findings reported by the St. Louis doctors (*Aerosol Age* May, 1958) and concludes: "The symptoms cleared up when the use of the hair spray was discontinued. The doctors point out, however, that Dr. W. C. Heuper has shown that PVP injected in test animals caused malignant lesions, indicating that caution should be exercised in its topical application on the skin and its introduction into the mucous membranes of the respiratory and alimentary tracts.

"Women who feel they cannot give up this type of hair spray should take the greatest care not to inhale it when it is applied. At a recent medical convention, one physician warned that a new lung disease has been observed that appears to be caused by some injurious inhalant, the nature of which has not yet been determined. While there is no basis at the present time for ascribing its cause to hair spray, careful avoidance of inhalation of hair spray in any quantity is indicated."

•

THE old argument of cold vs. pressure filling is brought up again in the July issue of *Packaging*, British trade publication. In an article describing the introduction of Aeratom pressure filling equipment into the British Isles, the author first quotes a recent article by Dr. Honisch (of Aeratom):

". . . According to Dr. Honisch, pressure filling has several advantages over the refrigeration method. He lists these as follows:

(1) Loss of propellant during filling is much less than in the refrigeration system.

(2) Pressure filling equipment is considerably cheaper than that needed for refrigerated filling.

(3) No insulated and chilled containers for propellant and active ingredients are necessary.

"Other disadvantages of refrigeration mentioned are condensation of moisture inside the aesosol containers and the difference between the coefficients of expansion of the metal of the aerosol container and the protective lacquer, where this is applied. This, states Dr. Honisch, causes cobweb fissures in the lacquer leading to loss of its protective qualities. A fur-

ther difficulty is the fact that aqueous products like shaving creams cannot be cold filled because they freeze solid at temperatures well above the liquefaction point of the propellant.

"Many of the above statements are true, to at least some extent, but some of the disadvantages are not quite so bothersome as is claimed. For instance, the loss of propellant in cold filling can be brought down to quite low limits if the cooling of the propellant is sufficient, and if can and product are precooled. Some slight evaporation of the propellant prior to clinching on the valve is beneficial since it sweeps residual air from the headspace. The presence of air is undesirable both from the point of view of causing excess pressures and for its possible effect on internal corrosion of the container or oxidation of the product. Incidentally, we seem to have come full circle since a rather notorious pamphlet, called 'Pressure Filling is for the Birds', was issued by an American firm. Among its many arguments against pressure filling was the alleged high propellant losses.

"In actual fact there are propellant losses in both methods, those in pressure filling being due to head spaces between the filling head and the sealing surface of the aerosol valve.

"The question of the effect of cooling on lacquered cans is also rather over-stressed, since lacquers are available which are sufficiently resilient to stand up to the rigours of refrigerated filling. Lacquers based on epoxy resins are among those which combine this property with that of chemical resistance.

"The main advantage of cold filling is, as mentioned by Dr. Honisch, the greater speeds which are attainable by this means. Another advantage already touched on above is the elimination of air from the headspace. In the case of pressure filling this has to be achieved in one of three ways. One is by purging with a few drops of liquid propellant before filling the product. The second is by evacuation, after clinching of the valve and prior to filling. The third is by inversion of the container after filling and then spraying for three or four seconds from the headspace."

•

THE June issue of *European Aerosol Survey*, Druk-Pak's quarterly newsletter on the industry situation in Europe, is somewhat critical of the formation of so many aerosol associations in Europe, pointing out that the duplication of function by so many groups may tend to discourage companies and individuals:

"To date there are groups in Switzerland, Germany, Finland,

(*Continued on Page* 61)

Six Antibiotics Makers Charged with Price Fixing

THE six leading manufacturers of antibiotics last month were charged by the Federal Trade Commission with fixing prices and attempting to monopolize the $330 million antibiotics industry.

The six companies cited were American Cyanamid Co., Chas. Pfizer & Co., Brooklyn; Olin Mathieson Chemical Corp., New York; Upjohn Co., Kalamazoo, Mich.; Bristol-Myers' subsidiary, Bristol Laboratories, Inc. American Cyanamid, through its Lederle Laboratories Division, makes an estimated 28% of the antibiotics produced in this country, Pfizer about 23%, Olin Mathieson 7%, and Upjohn and Bristol-Myers 4% each. Lederle, Pfizer, and Upjohn are all producing antibiotics specifically for aerosol formulation, and all three have their own topical aerosol products on the market.

All six of the companies immediately denied the charges, and were given 30 days to answer the complaint. An FTC examiner has scheduled a hearing, in New York City on Oct. 1, at which he will hear the pros and cons of the case, and then decide whether or not to uphold the charges. His decision is then subject to review by the FTC and if it is against the companies, may be appealed in the courts.

In addition to the price fixing charges, Pfizer was accused of making false statements on tetracycline, a broad spectrum antibiotic, in order to obtain a patent. All of the other firms mentioned in the charges were accused of soliciting and accepting manufacturing licenses on this particular antibiotic, even though they allegedly knew that Pfizer submitted "false, misleading, and incorrect information" to the Patent Office in order to obtain the patent.

American Cyanamid and the two Bristol companies were charged with keeping information about the tetracycline patent from the Patent Office. Among the other charges against all six of the companies are that they:

Fixed and maintained 'arbitrary, artificial, non-competitive, and rigid prices'."

Established "illegal resale price maintenance agreements."

Worked out licensing deals "with the purpose and effect of unreasonable foreclosing and preventing competition in the production and sales of tetracyline and chlortetracycline."

Denied to competitors a "reasonable opportunity to compete."

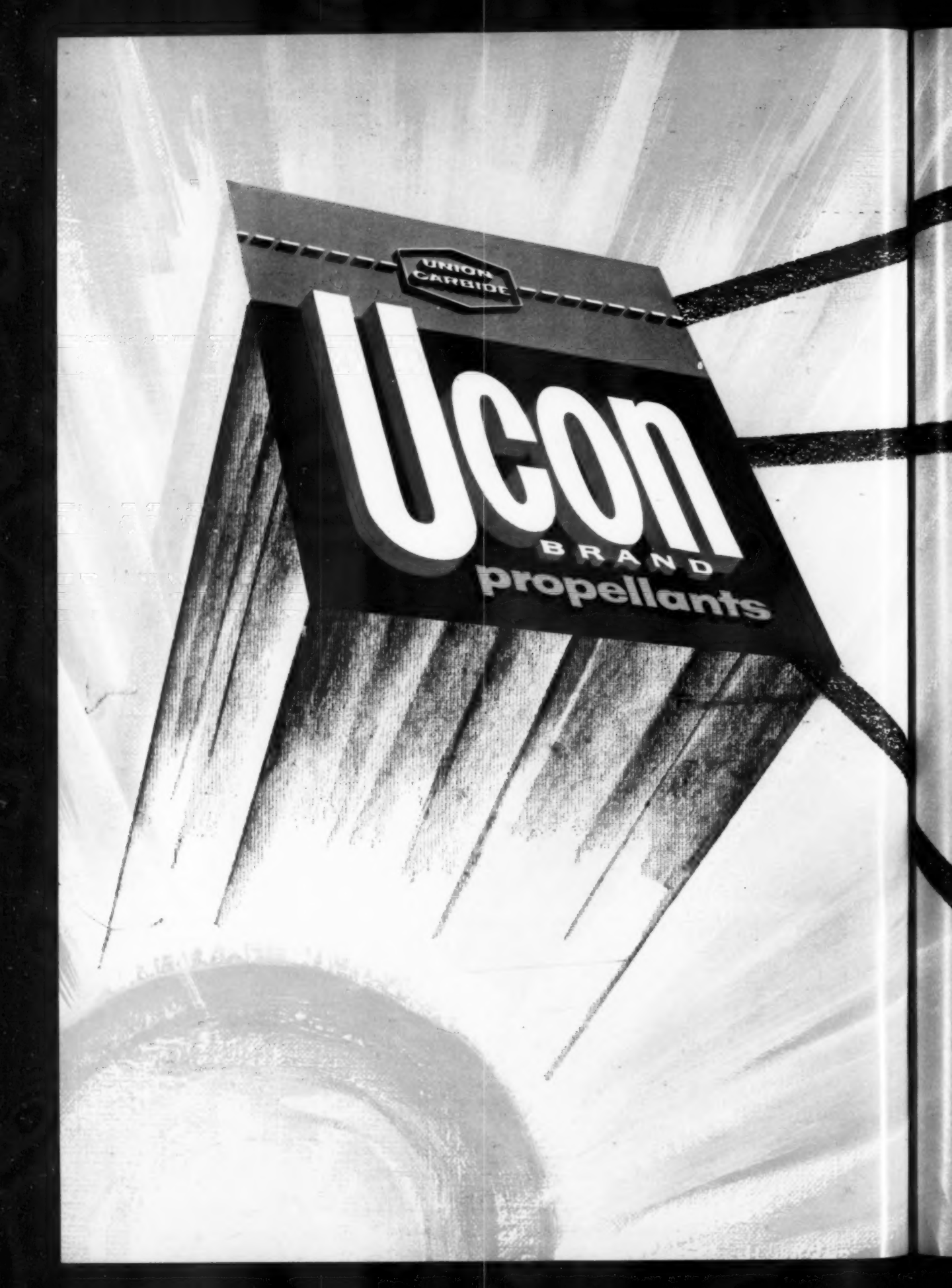
Attempted to monopolize the antibiotics industry.

Among the key officials of the companies denying the charges was John E. McKeen, president of Pfizer, who declared that FTC charges that Pfizer misled the Patent Office and withheld information on tetracycline are "utterly baseless". That particular patent, he commented, was "the subject of prolonged and vigorous contests in the U. S. Patent Office, in which all the pertinent facts were fully considered." He charged that this type of procedure could destroy the American patent system and endanger the drug industry's $130 million annual research program.

•

New British Valve Co.

Aerosol Associated Industries Ltd., a new company in the aerosol field, has been formed in London. The company will design, manufacture, and sell valves, valve components and "allied products." Solicitors for the new firm are Slaughter and May, 18 Austin Friars, London E.C. 2.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UCON Propellant 114 Dichlorotetrafluoroethane

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NEWS of Pressure Packaging

Sun Tube Drops Valve Line

Sun Tube Corp., Hillside, N.J., a subsidiary of American Can Company, announced last month that it had discontinued the manufacture and sale of aerosol valves. Joseph D. Martin, Sun president, said the change would not affect the firm's principal product lines of collapsible metal tubes and rigid-wall impact extrusions.

"We plan to devote our full efforts to expanding markets for our major product lines and to an accelerated program of new product development for the many industries we serve," he said.

The decision to withdraw from the aerosol valve field was taken after a study of the firm's position in the valve industry and the future potential of business available to it, he added.

•

Was to Represent Emson

S. J. Was, New York, aerosol sales representative, last month announced that Emson Research Inc., Bridgeport, is the first of the newly-formed sales concern's accounts. Mr. Was, former vice-president of VCA, recently left that company to form his own aerosol sales representative concern. He will handle Emson's line of metered and other valves, and its line of aluminum and stainless steel containers.

Mrs. Was has announced that a number of other accounts, now in the negotiation stage, will be announced in coming months. His firm maintains offices at 10 E. 49th Street, New York. Phone number is Plaza 9-7950.

•

Ward Glasby Retires

Ward Glasby, longtime member of Fuld Brothers, Inc., Baltimore custom filler, and general manager of the firm's Los Angeles plant, retired last month after 12 years with the company. Prior to becoming general manager of the Los Angeles plant, he was assistant sales manager of the Baltimore office.

The firm's Los Angeles plant will continue in operation with Marvin Rubin in charge of sales and Mike Horowitz as assistant sales chief.

•

Frangos Joins Revlon

John Frangos, former technical director of Powr-Pak Inc., has joined Revlon, Inc., New York, as director of the company's aerosol laboratory. He will be in charge of Revlon's aerosol development and will supervise filling both by the company's own line and by its custom fillers.

Prior to his association with Powr-Pak, Mr. Frangos was senior technical representative for aerosols at the General Chemical Division of Allied Chemical Corp.

•

Ponds Combines Operations

Chesebrough-Ponds, Inc., New York, toiletries manufacturer, has announced a decision to concentrate its manufacturing operations at Clinton, Conn. The company will cease manufacturing operations at Perth Amboy, N. J.; McKees Rocks, Pa.; and New York City.

O'Brien Joins Thomasson

Donald F. O'Brien has joined Thomasson of Pa., Inc., Norristown, Pa., as technical director of the firm's Personal Products Division. For the last eight years he has been packaging chemist and supervisor of the aerosol pilot line of the Colgate-Palmolive Co., New York.

According to David R. Bagenstose, Thomasson's vice-president and general manager, the addition of Mr. O'Brien to the company's product development staff is keyed to Thomasson's expanding aerosol operations in its new 70,000 square-foot plant.

•

Parco Signs Pact on Glass

Durable Plastics, Ltd., Guildford (Surrey), England, last month announced the signing of an agreement with Messrs. Parco (A/Sia) Ltd., Sydney, Australia, leading Australian custom filler, whereby Parco obtained sole rights to coat aerosol bottles by Durable's process. The agreement covers both New Zealand and Australia.

At the same time Durable Plastics announced the availability of similar licensing arrangements for other countries. Application should be made directly to the company at Woodbridge Industrial Estate, By-Pass, Guildford, Surrey.

•

Hazel Bishop Names Urban

Hazel Bishop, Inc., New York cosmetics manufacturer, has announced the election of Robert G. Urban as president and chief executive officer. He succeeds Raymond Spector, who will continue as board chairman.

Mr. Urban was formerly executive vice-president of the Family Products Division of the Warner-Lambert Pharmaceutical Co., and prior to that was vice-president in charge of marketing for J. Walter Thompson Co.

Gen. Chem. Names Hitchings

The appointment of Fred C. Hitchings as sales manager for its "Genetron" refrigerants and aerosol propellants was announced last month by Allied Chemical's General Chemical Division, New York.

He succeeds Lee D. Callans, who has been named manager of the Division's Market Surveys Department. Mr. Hitchings will be responsible for the sale of "Genetron" propellants to the aerosol industry and "Genetron" refrigerants to the original equipment market.

Harold L. Robbins continues as "Genetron" refrigerant wholesale sales manager.

A member of the Allied Chemical organization for 24 years, Mr. Hitchings has been manager of New York metropolitan sales for General Chemical's broad line of industrial, laboratory and agricultural chemicals since 1953. The first ten years of his career were spent as a salesman at regional sales offices in Philadelphia, New York, Providence and Cleveland. In 1944, he was made manager of the Detroit office and, a year later, became manager of the Los Angeles office. He was transferred to New York in 1950 as an executive assistant, becoming New York Metropolitan Sales Manager in 1953.

•

Kreps to Address SCC

The New York Chapter of the Society of Cosmetic Chemists will hear a discussion of sunscreens by Dr. Saul I. Kreps at its first meeting of the fall season, Wednesday, Sept. 3.

Dr. Kreps is technical director of Van Dyk and Co., manufacturing chemists. In his talk, entitled "Designing Sunscreens for Cosmetic Use," he will discuss the physical and chemical requirements for a successful sunscreen agent in a cosmetic product. Relatively few types have been successful. Dr. Kreps will show how interaction between radiant energy of sunlight and the chemical system of the sunscreen produces changes in the molecular and electron structure of the chemical compound, and will discuss how these changes affect the usefulness of such compounds as cosmetic sunscreens.

The meeting will be held Wednesday, Sept. 3, in the Baroque Room of the Brass Rail Restaurant, Park Avenue and 40th Street, New York. Dinner, at $4, is served at 6:30 P.M. and is preceded by a cocktail hour. There is no charge for the meeting, which usually begins at 8 P.M. Members of the Society of Cosmetic Chemists, their guests and all others interested in cosmetic chemistry are welcome.

•

Forum Program Announced

Aerosols will play an important part in the program for the 20th National Packaging Forum of the Packaging Institute, New York, scheduled for Oct. 13-15. Among the featured seminars scheduled for Tuesday, Oct. 14, will be a "Drug and Pharmaceutical Seminar", which will include such subjects as

"Pharmaceutical Aerosol Laboratory Developments"—Edwin Pomerantz, Pharmaceutical Section, Chas. Pfizer & Co., Inc.

"Rx for Aerosol Packaging Through Contract Packagers"—John C. Armstrong, Armstrong Laboratories.

"Rx for Aerosol Packaging . . . Do It Yourself" — Robert A. Foresman, Jr., Aerosol Consultant.

"Cost Substantiation of Aerosol Packaging"—Samuel Prussin, Director, New Products, Aerosol Techniques, Inc.

Also included in the program will be a "Package Marketing Seminar", chaired by Delbert Johnson, of Continental Can Co. The subjects of this seminar will include "Adapting Packaging to the Ever-changing American Market Pattern", "Coordinating Packaging with Art and Production", "The Use of Motivational Research in Package Planning", "The Importance of Color", "Predicting the Success of the Package", and "The Role of the Package Designer in Your Packaging Program."

•

Two Join Webb & Co.

R. D. Webb & Co., Cos Cob, Conn., supplier of essential oils, has named George A. Hart to its Chicago sales staff. He will cover the state of Illinois.

At the same time the company named R. E. Beaumont, Beaumont Brokerage, Co., P.O. Box 232, Bellevue, Washington, as sales representative for the states of Washington and Oregon.

Atlas Unveils New Lab

Laboratory scale aerosol packaging equipment is included in the cosmetic and pharmaceutical laboratories of Atlas Powder Company's new technical center, at Wilmington, Del. In the photo F. Faxon (left), director of the product development department, shows sample of an experimental aerosol toothpaste to Edward J. Goett, senior vice-president.

Atlas equipment includes both liquid propellant and compressed gas filling facilities, for experiments in loading lotions, pastes, and soft creams. The role of the company's cosmetic and pharmaceutical laboratories is to assist users of polyols or surfactants in application of these ingredients. Atlas is currently engaged in expanding usage of these materials in aerosol products.

•

Carter Begins New Plant

Carter Products, Inc., manufacturer of "Rise" shaving cream, "Sno White" aerosol toothpaste, and other aerosol products, last month began construction on a new $3.5 million plant at Cranbury, N. J. Governor Robert B. Meyner turned the first shovel-full of dirt on the project, which is slated for completion late next summer.

The new plant will include manufacturing, shipping and warehouse facilities for all of Carter's toiletry and proprietary products. The new building will be a one-story structure occupying approximately 250,000 square feet of floor space, and will employ about 300 persons.

•

Canco Promotes William May

William F. May, former Central area manager of manufacturing for American Can Co., New York, has been appointed national sales manager for processed food containers. C. F. Heiberger succeeds him as Central area manager of manufacturing.

Packaging Symposium Set

The Joint Military-Industrial Packaging and Handling Symposium, under the sponsorship of the Office of Naval Material, Department of the Navy, has been announced for Sept. 30-Oct. 2 in Washington. The symposium is open to anyone desiring to attend, and there is no registration fee.

Among the subjects of interest to the aerosol industry are:

The Modern Approach to Packaging Administration
Distribution and Material Handling
Molded and Fabricated Rigid and Semi-Rigid Plastic Containers
Exploring the Automatic Warehouse Theory
Packaging Tester
The Source to User Concept
Materials Handling—Questions and Answers
New Trends in Packaging Materials and Machinery

Complete details about time and place of the various talks are available by writing directly to the Chief of Naval Material (M721), Washington 25, D. C.

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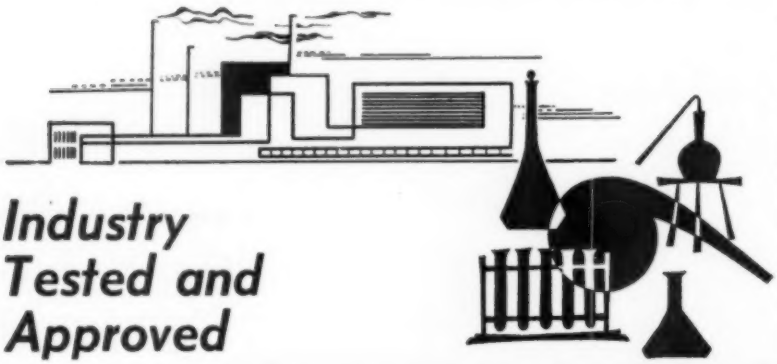

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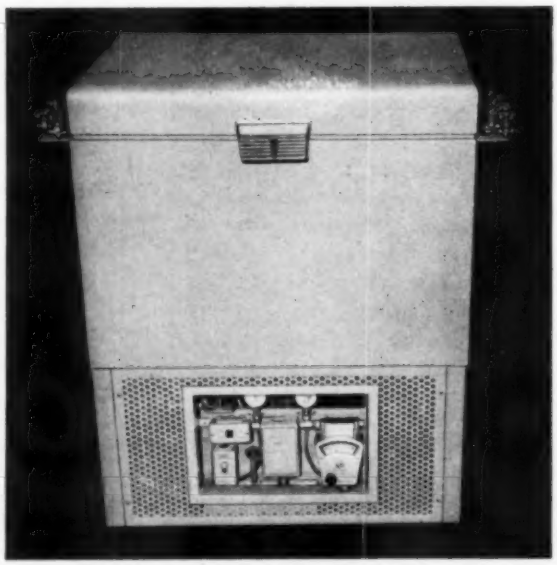

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Roehrich Returns From Europe

Paul Roehrich, president of Richford Corp., 3618 Oceanside Road, Oceanside, Long Island, N. Y. has recently returned from a five weeks business and pleasure trip in Europe. The principal purpose of the trip was to make a study of the European market for possibilities of the sale of Richford closures, aerosol containers, and other perfume and cosmetic accessories, and to establish representation in Belgium, Holland, Switzerland, Sweden and Germany. Mr. Roehrich reports that European products like that of his firm in no way compare in quality and design to American products and he feels certain that a really substantial market for them is developing there.

•

New Pyrethrum Agent Named

Balfour, Guthrie & Co., Ltd., New York and London, has been named to service sales of African pyrethrum to the United States, it was announced last month by three separate groups of African growers. The company will act through its U. S. company of the same name, and will continue a promotion program, begun in 1955, for the publicizing of new developments in the application and usage of this quick-knockdown insecticide.

The African groups are the Pyrethrum Board of Kenya, the Pyrethrum Board of Tanganyika, and the Societe Cooperative des Produits Agricoles of Belgian Congo. H. Alvin Smith, an advisor to the African growers, said this appointment completes a new program for handling U. S. sales of pyrethrum. Service operations by Balfour, Guthrie, are strictly defined as relating only to servicing shipments, deliveries, sampling, analysis, and similar matters in connection with sales of dried flowers and/or extracted pyrethrins. All negotiations concerning sales will be on a direct basis between U. S. buyers and African sellers.

•

Tussy Names S. L. Smith

The Tussy Cosmetics Division of Lehn and Fink, Inc., New York, has appointed S. LeBaron Smith as sales manager. Mr. Smith moves to that position from the post of merchandise manager of the same division.

A. J. Zelle Joins VCA

Appointment of Andrew J. Zelle as a consultant member of the firm's engineering staff, was announced recently by Valve Corp. of America, Inc., Bridgeport, Conn., a leading aerosol valve manfacturer.

He will work directly with Royal T. Ferry, VCA's chief engineer in the development of new production and packaging techniques. Prior to his appointment at VCA, Mr. Zelle was director of packaging research for Connecticut Chemical Research Corp., where he was instrumental in the development of specialty components used in the packaging of pressurized containers including valves, closures, cans and new package designs. Among his most recent achievements was the designing and building of an automatic production line for the manufacture of metered perfume dispensers, including development of specialized automatic filling and sealing machinery.

Mr. Zelle also served as Connecticut Chemical's director of quality control and plant engineer and in the product development department of Bridgeport Brass as a specialist on aerosols. A member of the Chemical Specialties Manufacturers' Assn., Mr. Zelle is active on its Glass and Plastic Container Committee, the Filler Safety Sub-Committee, and the Glass Container Sub-Committee. He is also affiliated with the Packaging Institute and the American Society for Quality Control. Mr. Zelle is a graduate of Bridgeport Engineering School in Mechanical Engineering.

•

Babbitt Profits Up

B. T. Babbitt, Inc., last month announced that net profits after taxes for the first six months' period of the year were $510,786, on net sales of $9,584,318. At the same time Marshall S. Lachner, company president, reported that an adjustment of approximately $200,000 is to be charged against the earned surplus for a non-recurring loss sustained and anticipated on the disposal of the fixed assets and inventory of the Bridgeport plant.

Mr. Lachner said, "Connecticut Chemicals Research Corporation's operations resulted in a loss which is reflected in the earnings for the first six months of the year. Because it was a continuing loss operation, we closed the Bridgeport plant and production of aerosol products will be handled by a leading contract manufacturer, with whom we have concluded an agreement whereby these products will be manufactured to our own quality standards." The Connecticut Chemical Research equipment was sold earlier this year to Powr-Pak, Inc., Bridgeport custom filler.

•

French Aerosol Office

The recently formed French Aerosol Committee (Comité Francaise des Aerosols) has announced the establishment of offices at the Maison de la Chimie, 28 rue Saint-Dominique, Paris 7. The office will serve as a general information center for French aerosol firms, will promote scientific and technical collaboration in the industry, and maintain contact with developments in other countries.

Claude Franck, of the Cie. Parisienne du Conditionnement Aerosol, is the first president of the committee.

•

Toni Appoints Bogaty

Herman Bogaty has been promoted to associate research director for The Toni Co., Chicago. In his new assignment, he will be in charge of the company's research and development programs in the home waving field. In addition, he will continue to be responsible for the Toni Division's experimental beauty clinics and for the analytical chemistry section.

Before joining Toni, Mr. Bogaty was employed for seven years by the Harris Research Laboratories, Washington, D. C., another division of The Gillette Co.

Acquires Midland Firm

London Aluminium Co. Ltd., London, has acquired a "substantial" holding of shares in Midland Aluminium, which in turn owns half of Midland Aerosols Ltd., a major English contract filler, and London Aluminium (Containers) Ltd. a producer of aluminum aerosol containers.

Midland Aluminium also owns the other half of Midland Aerosols, Specialty Valves Ltd. and several other metal fabricating companies. American licensees of Midland Aerosols have an option to buy 25% of that company, those shares to come from Midland and London in equal proportions if the option is picked up.

•

Glidden Establishes New Lab

The Glidden Co. has announced establishment of a new automotive and industrial sales and service laboratory at 7508 Woodward Avenue, Detroit. G. Sheldon Veil will manage the unit, which is equipped to provide evaluation and testing of industrial and automotive finishes.

•

Fisons Signs Sales Pact

Fisons Pest Control Ltd., London, England, recently completed an agreement with J. R. Geigy SA. Basle, to be sole concessionaire in the United Kingdom for Geigy's line of agricultural products, apart from DDT.

DuPont Aerosol Group Visits Bridgeport Plant

A delegation of Du Pont aerosol experts recently visited the new laboratories of Aerosol Techniques, Inc., in Bridgeport, Conn., to join ATI chemists in a discussion of aerosol technical problems and new developments. Seated is Fred Presant, ATI director of research and development. Standing, left to right: front row, H. R. Shepherd, president of ATI; Du Pont's Charles Wirth, III, Dr. Fred Read, Dr. Paul Sanders, Dr. Don Kvalnes and A. H. Lawrence, Jr.; back row, Du Pont's C. Earle Kimble, ATI's James Russo; Du Pont's Dr. Frank Bower, ATI's Sam Prussin and Fred Gardner, and Du Pont's L. P. Hall, Jr.

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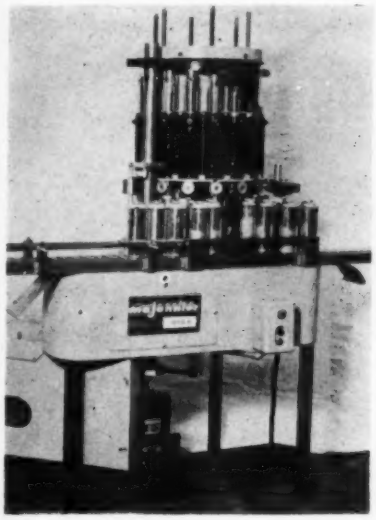


A rotary pressure filler that will fill up to 300 grams of propellant per container at speeds up to 120 containers per minute has been announced by Mojonnier Associates, Inc., Franklin Park, Ill. By adding more horsepower, the company reports, the unit can be made to deliver up to 300 containers per minute.

At the present time, Mojonnier points out, speeds in excess of 120 per minute are limited by the necessity of feeding the aerosol valve onto the container by hand. A mechanical valve inserter is reported to be under construction at the Mojonnier plant that will allow production speeds of up to 300 containers per minute.

•

Gibberellin Folders

A series of four-color folders describing the benefits of the use of Gibrel, for cotton, grapes, truck crops, tomatoes, and celery has been issued by Merck & Co., Rahway, N. J. "Gibrel" is Merck's registered trademark for gibberellin, a plant growth stimulant.

Each folder describes a recommended formulation, application time, and other pertinent information for use on food crops, which is a relatively new application for the gibberellins.

•

New Cream Base Material

The availability of experimental quantities of a new cream base material which appears to be effective in transferring active medicinal and cosmetic agents through the skin tissue has been announced by van Ameringen-Haebler, Inc., New York.

"Transdermine," the trade-marked name for this lecithin-like synthetic material, contains all of the major chemical entities present in natural lecithin, such as glycol esters of fatty acids, a phosphoric acid radical and an amino alcohol. It occurs as an ivory wax-like solid which can be converted into an emulsified cream.

The company stated that extensive animal studies for primary irritancy and sensitivity revealed no significant adverse responses. They also stated that "Transdermine" may be included in topical preparations in quantities up to 15% without the need of a new drug application.

Much of the initial pharmacological investigative work on the new material was done by Joseph Sternberg, M.D., professor of nuclear medicine, University of Montreal, who conducted studies with radio-active tracer materials to determine the utility of this new substance.

•

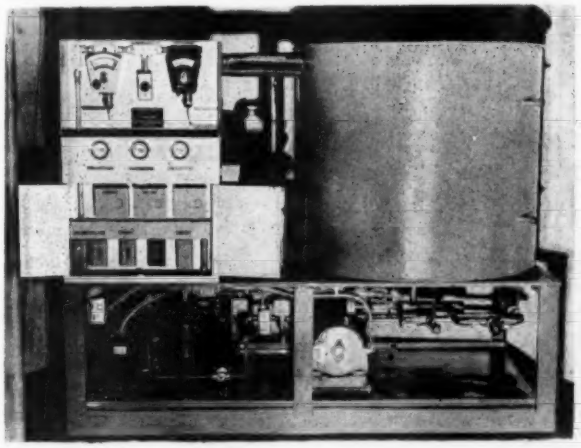
Fire Extinguisher Booklet

An authoritative statement on the safety of carbon tetrachloride-type fire extinguishers has just been published in pamphlet form by the National Fire Protection Association, internationally-recognized source of standards in the fields of fire protection and fire protection equipment.

The revision clarifies the proper limitations of the use of extinguishers employing this medium.

Copies of the pamphlet No. 182-M (8 pages, 25 cents) may be obtained from the National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass.

Monsen Unveils New Product Concentrate Chiller

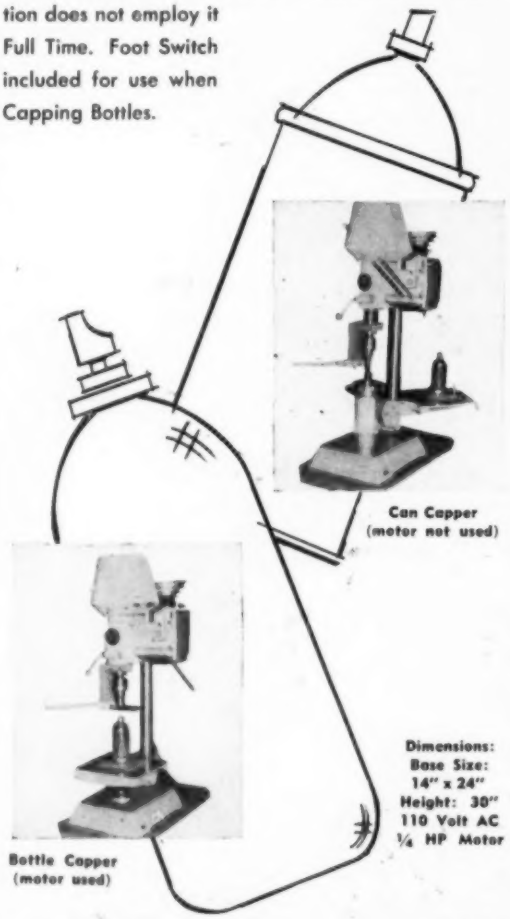


Close-up of new Monsen chiller. Controls are at left, concentrate holder at right, and refrigeration unit below.

Monsen Refrigeration Service, Bloomfield, N. J., has announced the development of a new glycol and water concentrate chiller for low or high temperature applications. The unit can be cooled from 130°F. to —30° in 24 hours, or can be heated from —30° to 130° in the same time interval. It can be thermostatically controlled, and hence is completely automatic. Further details can be obtained by writing the company at 228 Montgomery Street, Bloomfield, New Jersey.

NEW COMBINATION
CAPPER
for AEROSOLS

BUILDER'S NEW "Combination Drill Press Capper" for Aerosol Bottles and Cans has a production rate of approximately 2-per-minute with Aerosol Bottles . . . 8-per-minute with Aerosol Cans. BUILDER'S CAPPER can be used as a "Drill Press" where Aerosol Production does not employ it Full Time. Foot Switch included for use when Capping Bottles.



Can Capper (motor not used)

Bottle Capper (motor used)

Dimensions:
Base Size:
14" x 24"
Height: 30"
110 Volt AC
¼ HP Motor

Aerosol Bottle Capper	$208.00
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Refrigerated Cooling Coil

A new device which provides a refrigerated cooling coil which can be immersed in liquid or placed in a cabinet to create a cold chamber has been announced by Andrew Technical Supply Co., Chicago. Called the "Cold-Coil", it is a portable, self-contained unit comprising a rolling cabinet housing the compressor and thermostat, plus a five-foot extension hose to the tinned copper "Cold-Coil". The cabinet measures only 15 x 20 inches.

Thermostatic control accuracy is maintained to plus or minus 20°F. at any preset temperature from ambient to 5°F. The thermostatic temperature probe is placed in the vessel or cabinet to be cooled. Special coils for corrosive conditions are available, as well as larger units with or without means for forced circulation of a refrigerated liquid.

Full data is available from the company at 7068 North Clark Street, Chicago 26.

•

New Pyrethrum Aerosol

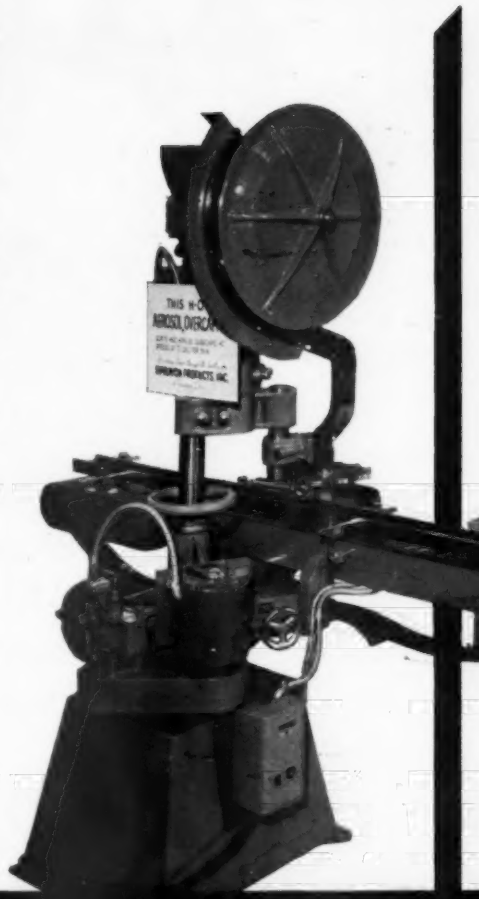
A lightweight aerosol insecticide package designed for professional use and resale by pest control operators has been developed by Chapman Chemical Co., Memphis. Called the "Chapman Professional PCO Bomb", it is for control of flying insects and for use as a search weapon for flushing out hidden cockroach infestations.

The unit contains a high level of dual synergized pyrethrum, which is reported to be much stronger than ordinary household-type insect aerosols. Further details are available from the company at P.O. Box 138, Memphis 1.

•

Ink Reducer Spray

An aerosol method of applying ink reducer to printing presses has been introduced by the British Printing Ink Co., Ltd., 26/29 Poppins Court, Fleet Street, London E.C. 4. Called "A-Tack Spray", it reportedly can be sprayed directly onto the machine to reduce poor setting, plucking, and other printing problems. The product is also a solvent.



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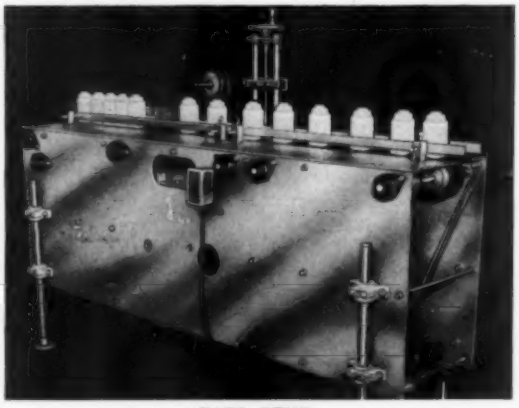

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Sparlets Readies New English Aerosol Metering Valve

SPARKLETS LTD., London, England, last month announced that it has reached an advanced stage of preparation for quantity production of a new type of metering valve. In reply to an inquiry from *Aerosol Age*, R. P. Rousset, Sparklets development director, acknowledged that the company will have a metering valve ready for full production later this year, and declared that patent applications have already been filed in a number of countries.

Mr. Rousset's description of the valve is as follows:

"The valve may be readily adjusted at the point of manufacture to provide dosages from 20 to 65 milligrams per actuation, a range of dosage chosen as the one most likely to meet known requirements. We will, however, be considering larger sizes of valves. The accuracy of dosage is given as plus or minus five milligrams, but our experience is that even better performance may be expected. The design is such that during passage through the valve, the substance being dispensed does *not* come into contact with any metallic surface.

"Whilst in certain instances it may be necessary to alter the valve housing to suit specific types of containers, it may be generally considered applicable to *any* size of metal, plastic, or plastic-coated glass container. With respect to filling, it is significant that this can be achieved through the valve with pressure equipment at rates approaching those attainable with cold filling equipment. It may be of interest to state that a minor alteration to one component, will enable the device to be used as a continuous discharge type valve.

"Another feature is that the actuator, whether in the form of press button, cap, or special type, is not easily removed once it has been fitted. As can happen in the case of many valves available at present, the actuator will not become inadvertently detached."

Mr. Rousset points out that Sparklets began work on the valve three years ago, after a search of patents to see that the basic design did not infringe similar patents, and an attempt to eliminate the cause of other malfunctions in other metering valves on the market at that time.

The cost of the new valve, according to Mr. Rousset, will be *less* than similar devices, although no definite cost has yet been established. For the present, samples are not generally available, and inquiries should be directed to the company at Queen Street, Tottenham, London N. 17.

•

Silicone Development Lab.

The Silicone Products Department of General Electric Co. has opened a new laboratory for the development of silicone products at the department's headquarters in Waterford, N. Y. Silicones are an ingredient in aerosol glass cleaners, polishes, pressurized hand lotions, and a number of other newer products.

The laboratory is slated for completion late this year or early in 1959. It is part of a $5 million expansion program begun in 1956.

•

Embassy Expands Plant

A new and enlarged plant, with "greatly" increased capacity for manufacture, has been acquired by Embassy Laboratories, private label cosmetic manufactures, and will be in full operation by Sept. 1, according to a statement by Franklin H. Cooper, founder of the company. Located in Brooklyn at 2896-98 Fulton Street, the new quarters have facilities for tank storage of materials, manufacturing, warehousing and shipping, as well as fully-equipped laboratories for research and development work.

In announcing the new plant, Mr. Cooper stated that his company will offer packaging and formulation consulting, storage and drop-shipping for customers, and manufacture and packaging of all major cosmetics. With these added facilities, Mr. Cooper stated, Embassy will have one of the most complete private label cosmetic services in the N. Y. area.

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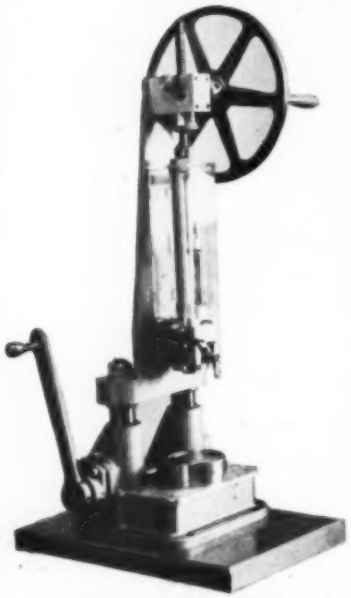

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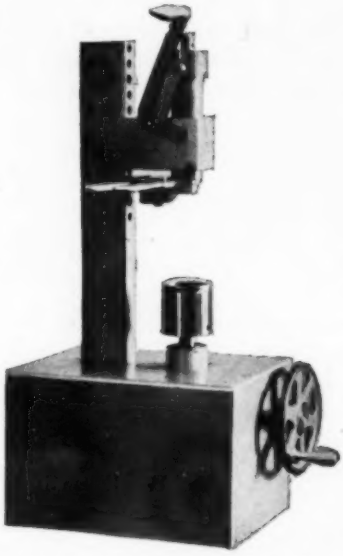

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Crown Names 2 in N. Y.

Crown Cork and Seal Co., Philadelphia, has announced two important appointments for its New York region. F. Stanley Kreps,

Kreps

Flaherty

formerly manager of national accounts at Crown's New York office, was appointed manager of can sales for the New York region, and Patrick F. Flaherty was named manager of closure sales for the same region.

Mr. Kreps joined Crown in 1936 as a salesman and has held various sales and administrative posts since. He is a graduate of Dickinson Law School. Mr. Flaherty joined the company in 1931. He will retain his present account responsibility and will also be responsible for development of new sales for the company's line of closure products. He holds a degree in mechanical engineering from Polytechnic Institute of Brooklyn, and an LLB from St. Lawrence University.

•

Toothpaste Ads Criticized

Congressmen, investigating charges of false and misleading advertising claims by toothpaste manufacturers, last month suggested that Congress might strip the Federal Trade Commission of its authority to police such advertising and turn the entire job over to the Food and Drug Administration.

The recommendation was included in a report by the House Legal and Monetary Affairs Subcommittee, headed by Rep. John A. Blatnik (D. Minn.). In its report the House investigators charged that the FTC lets toothpaste manufacturers get away with "deceptive" advertising claims. It advised that the commission call toothpaste makers together to try to set up some type of voluntary "fair advertising practices code", and that manufacturers be required to back up their claims with "competent scientific proof".

The subcommittee report noted that manufacturers spent more than $25 million to promote the 12 leading brands of toothpaste, and despite this some of the claims in the advertisements tended actually to *discourage* proper dental hygiene.

During the subcommittee hearings, chief criticism of toothpaste advertising claims came from a parade of American Dental Association witnesses. Most of these attacked the "false sense of security" that is created through use of some of the advertised brands of dentifrice.

•

Milton Stern Dies at 63

Milton Stern, assistant sales manager of Magnus, Mabee & Reynard, Inc., New York, died August 17th, of a heart attack at the age of 63.

He joined MM&R in 1924 and for many years directed the activities of the contract department. He is survived by his widow Mrs. Rose Stern, a brother and two sisters.

•

Product Design at N. C. State

North Carolina State College, Raleigh, has announced plans for the establishment of a new department of product design as part of its School of Design. Austin R. Baer, president of Idea Technology, Inc., New York, a consulting firm in aerosol and other product design, has been appointed to head the department.

According to Dean Henry L. Kamphoefner, the principal objective of the new department will be to train students to design industrial products. A comprehensive five-year course of study for the degree of Bachelor of Product Design will be inaugurated with the fall school term. Commenting on the role of the new department, Mr. Baer said it will be dedicated to "bringing fresh, creative, and original thinking to the product problems of American industry."

•

D&O Celebrates 160th Year

Dodge & Olcott, Inc., New York supplier of essential oils and aromatic chemicals, will celebrate its 160th anniversary in October. The company, established in 1798, during the administration of John Adams, second president of the U. S., is the oldest in America specializing in the manufacture and merchandising of essential oils, aromatic chemicals, oleoresins, seasonings, flavors and perfume bases for the food, cosmetic, drug, and industrial odorant industry.

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Du Pont Shifts "Freon" Staff

Reassignment of technical sales personnel serving customers of "Freon" aerosol propellants has been announced by Du Pont.

Effective Oct. 1, Lawrence P. Hall, Jr., for the last two years technical assistant to the division's aerosol sales manager, will become the division's technical sales representative in the St. Louis, Mo., territory. Robert Wright, Jr., will move from St. Louis to the Chicago territory, replacing Glenn A. Piper, Jr., who becomes technical assistant to the aerosol sales manager in the Wilmington, Del., office of the "Freon" Products Division.

Effective Sept. 1, Aubrey E. Fulford will transfer from the Jacksonville, Fla., to Kansas City. M. Brooks Jackson will move to Jacksonville, and John K. Worthington transfers to the Syracuse, N. Y., territory.

Consultants' Corner

(*From Page* 33)

longer valid; and, last but not least, by the hardening of active material in the external valve passages so that material from the package interior cannot push its way through.

In all likelihood, the criticisms that I have mentioned may be traced to increased impact of aerosol packaging in the minds and reactions of the Consumer. There is the present danger however, that with this increased impact and the continuing upward growth of the industry sales curve, we may become complacent and even cynical about the importance of absolute quality in the market place. The unfortunate thing about this insidious development is that by the time proof to the contrary appears, the damage will have been done.

By and large, aerosols are far better today than they were even five years ago. But we should not allow the fact that more and more people are buying them to halt continued improvement in quality and functional capacity.★

Nylon Containers

(*From Page* 19)

nylon resin. More than half the women who purchased cologne in any form said they would make at least a test purchase of toilet water in an aerosol container at a 15-cent premium, and a substantial 43% said they would *not* be discouraged by the 30-cent 'extra charge'. Even more significant, however, is the fact that 74% of those who already prefer the aerosol container report they would be willing to pay a 15-cent premium, and 59% okayed a 30-cent premium."

To get an up-to-date picture of the container supply status among the various fabricators, *Aerosol Age* queried each and came up with the following status reports:

National Plastic Products Co. is now ready to go into full production. Complete production facilities are available, including automatic spin sealing machinery and other necessary equipment required in production fabrication.

The company is offering any standard color or combination of colors, and the bottles can either be molded of natural nylon or metallized in silver or bronze color. The bottle, which will accommodate standard glass bottle valves and caps, will cost from 15 to 19 cents for the 3¼ ounce bottle, depending on quantities and color combinations.

United Plastic Industries' nylon container is a four-ounce unit designed to be filled from the top with a new patented sealing closure. The bottom of the container is sealed with a metal ring to enable the filler to use either pucks or magnets on conveyor lines. A variety of colors is available, and other sizes are being developed. United reports that its prices will be "reasonably competitive with other aerosol containers of this type and size, such as coated glass and metal," and considers the patented features of its aerosol container an advantage to the economy of the filling operation. The company also points out that shipping and handling costs will be generally lower because of the lighter weight of "Zytel".

A. H. Wirz, Inc. reports that it has built experimental molds for the purpose of fabricating molded bottles, and has already produced two types on an experimental basis. One is tall and slender with approximately four ounces in capacity. Wirz is currently in the process of redesigning and modifying both these models and the mold "so as to correct some conditions which have shown up as a result of the company's initial pilot run."

Henry S. Darlington, Jr., the company's chief product engineer, reports that Wirz is working with spin welding the two bottle halves, following pretty much the experimental method developed by DuPont. "While our original molds were not designed to be for full scale production, they may lend themselves to initial pilot plant production. We have the strong feeling that with an aerosol of this kind the bottles would have to be custom designed to suit the particular customer. We would be glad to work with individual customers in the design of bottles and molds to meet their specific requirements.

"It is going to be necessary for us to do a good deal more experimental and design work before we will be ready for full scale production. Because of the many unknown factors, it is impractical for us to quote exact prices at the present time, but we obviously must come up with prices which will be competitive.

"With the two-piece spin welded bottle such as we are planning to produce, there are many possibilities in decorative finishes. The tops and bottoms may be of different colors and some very interesting combinations are possible. We are investigating a means of lithographing the bottles for added decorative touches."

Bernadin Bottle Cap Co. is also doing experimental work on the nylon container, but is still in the process of

(*Continued on Page* 58)

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testing for strength, permeability, molding techniques, etc. Lewis J. Otterson, sales manager for the company's Special Products Division, reports that "At the present time we do not feel we are far enough along to be able to give specific information about this container to the trade. We can tell you that it will be approximately four ounces in capacity."

American Plastics Products will very shortly have a line of small-size containers in production stage. First reports indicate that the company has not settled on a definite shape but is currently working on a whole series of new shapes and models.

With all this commercial activity at the production level, with the numerous new valve developments over the past few years, and with the rush by leading perfume and cologne marketers to put aerosols on the market, it would appear that nylon could soon become a major factor in the container field.★

New Avon Cologne

(*Continued from Page* 22)

key flaws still remained. For one thing, the rose-petal design was too susceptible to breakage and other damage during handling and shipping. For another, the general color and finish of the plastic left something to be desired.

FOR its third model VCA changed plastics, obtaining a richer rose color and achieving the rose petal design by embossing it directly into the plastic. The end was not yet in sight, however, for molding restrictions caused the formation of unsightly lines through the plastic, and the embossing process resulted in a rough-surfaced model which detracted from the overall appearance of the cap. A fourth model generally achieved the final shape, with the external rose petal effect, but VCA engineers were still dissatisfied with the lines and whorls left by the molding process.

To achieve the desired top, VCA used Kopper's "Superdylan", a plastic which holds the pieces together by friction rather than by employing adhesives. Through strict control of temperature and pressure requirements, elimination of the surface markings was virtually assured. The resultant bottle top has the same color as the original non-aerosol knob, the same high gloss finish, and, with its rose petal design around the orifice, is believed to display even more eye appeal than its predecessor.

Wheaton, the supplier of the glass container coated with polyvinyl chloride, also ran into problems. This plastic protects the glass container against abrasion and breakage, and must expand with the pressures of escaping gases if breakage does occur. Another major (and sometimes overlooked) function of the coating is to impart a softness and warmth of feel to the container, and also to give it a desired color.

In copying the original glass package, Wheaton had to adhere to several principles which must be observed in the design of aerosol packages. The original bottle had several sharp angles and corners which had to be softened or eliminated in the aerosol container. This not only prevents excessive pressures from being directed to any one side or to any one area of the bottle, but also results in better weight distribution of the glass. Despite these necessary compromises, the final design bore marked similarity to the original conventional package.

These compromises also necessitated further alterations to obtain desired capacities. Aerosol containers require a minimum of 12% headspace to allow for gas vaporization, while standard non-pressurized containers would have a normal headspace of only about 5%. The increased headspace requirement was met with a slimmer longer-necked bottle which successfully maintained the Grecian urn-like appearance of the original package.

Because both VCA and Wheaton were able to adhere so closely to the familiar shape, Avon was given a major assist in its project of introducing "To a Wild Rose" to the mar-

ket in an aerosol container. All of the advantages inherent in such a package (ease of use, non-evaporation, lasting fragrance qualities, etc) were readily sold to consumers who were used to seeing the conventional package in the same type of container. The effect on the success of the product was marked, and Avon was able to propel the product rapidly to a favorable position among the leaders in a product type that has become a highly competitive business.★

New Car Paints

(*Continued from Page* 30)

much greater selection of coatings, especially in the pastel shades, and in quick-drying surfaces, which home decorators find attractive. For our company the convincing proof of the need for such an expanded line, has been the success of some of our distributors with matching colors for automobiles, especially those that offer a wide selection of shades."

Sales in these outlets have been very impressive. Experience with this type of line indicates that 80% of the people who buy these matching colors for cars make use of them as decorator colors for purposes other than car touch-up. They find application on all types of metal items, from mirror frames to lamp bases, bathroom fixtures, and kitchen appliances.

"These are some of the reasons behind the decision by Plasti-Kote to add a complete line of car matching colors to its paint line."★

•

Williams Appoints Grafer

Harold L. Grafer has been named vice-president and director of marketing for the J. B. Williams Co., Glastonbury, Conn. He was formerly vice-president and director of marketing services for McCann-Erickson, serving as consultant on drug and toiletry accounts.

Vinyl Chloride

(*Continued from Page* 28)

5.) If it is desired to have an absolutely non-inflammable aerosol, this may be achieved with vinyl chloride by using a non-inflammable active product along with a mixture of a non-inflammable liquid gas.

6.) Hydrolysis tests show the reaction of vinyl chloride with water. In my article "The Aerosol Package in Germany" (June 1955 issue of *Riechstoffe und Aromen*) I reported that according to test results then available, the hydrolysis reaction of vinyl chloride lay somewhere between that of dichlorodifluoromethane and trichloromonofluoromethane. As a result of further tests which I have since made and verified over longer periods of time, my original estimate must now be corrected. From U.S. references I have been able to verify the hydrolysis reaction of dichlorodifluoromethane and trichloromonofluoromethane in the figues given below:

Dichlorodifluoromethane
28.0 grams per litre per year
Trichloromonofluoromethane
9.5 grams per litre per year
Dichlorotetrafluoroethane
3.0 grams per litre per year
Vinyl Chloride 0.7 grams per litre per year

My tests were made with water and pieces of tin plate, steel and aluminum and covered more than one year.

7.) In connection with its physiological compatibility, we have the following results on vinyl chloride:

a) *Inhalation Test.*—at Laboratories of Dr. Heinz Schade in Darmstadt.

Test Subjects: Two different types of white mice (five of each kind) were housed in a closed cabinet and twice daily for a period of 60 days exposed to an atmospheric vinyl chloride gas mixture for one half hour each time. The concentration of vinyl chloride was 0.5% by volume.

Result of Test: No observable changes in behavior, well-being, or appetite during or after the test. The animals suffered no ill-effects from the daily inhalation and no bodily damage or injury could be discovered on dissection. Even with a vinyl chloride volume concentration of 5% the same negative results were obtained.

b) *Dermatological Test* carried out at the Dermatology Clinic, University

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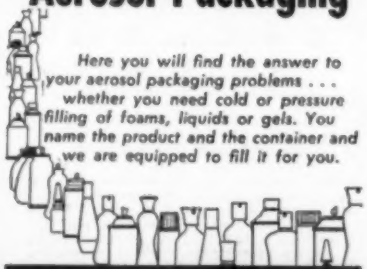

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of Goettingen, Germany. Used in the test were: (1) An aerosol sun-tan oil pressurized with vinyl chloride and (2) an aerosol sun-tan oil pressurized with dichlorodifluoromethane trichlorormonofluoromethane 1:1. The tests were made on the ear lobes and under-arm pits of 50 people of both sexes between the ages of 18 and 73 years over a period of 5 days. Some of these subjects with advanced cases of skin diseases were purposely included in the group.

Results of Tests: There was *no* difference between the two pressurizing agents so far as skin reaction was concerned. There was no observable reaction on those included in the test with skin diseases, particularly eczema, as between the two kinds of propellant used.

c) *Further References.*—The MAK (maximum allowable concentration) value for vinyl chloride is given in Volume 5 of Ullman's "Encyclopedia for Technical Chemistry" as lying between 500 and 1000 (MAK value for trichloromonofluoromethane is given as 1000). A concentration by volume of something between 0.5% and 1.0% can be inhaled for hours without any danger whatsoever. However, such a concentration never occurs in any room or closed area in the normal use of an aerosol package pressurized with vinyl chloride. In this connection the same encyclopedia says: "Vinyl chloride is only very slightly toxic and only very slightly irritating". The years of experience of loaders and fillers who have used vinyl chloride and the tests and observations of those who have followed the use of millions of cans pressurized with it, bear out these statements. It would seem, therefore, that from a physiological standpoint no objection can be made to the use of vinyl chloride as a propellant for aerosols.

In *Aerosol Age*, May 1956, the question is posed: What kinds of new propellants are required? The given answer is: cheaper, more soluble, odorless, tasteless and more compatible (the last for foodstuffs, particularly). Vinyl chloride possesses the first three of these requirements.

Methylene chloride is sometimes used as a propellant diluent since it is less expensive than the normal liquid propellants and also is a very good solvent. In the June 1956 issue of *Aerosol Age*, appears an article: "Methylene Chloride in Aerosol Production" which mentions the elastomer trouble which this product can cause. Since vinyl chloride can also give rise to this same trouble, it is necessary to employ valves fitted with special elastomer materials. Elastomers are now available which will withstand the swelling produced by these products.

It goes without saying that before a loader can successfully use vinyl chloride as a propellant he must have the necessary experience and chemical and technical background. Loading pressures and temperatures are particularly important.

Even as we have propounded the question: What is the ideal filling method, so we can also advance the question: What is the ideal propellant? The correct answer would seem to be: Vinyl chloride *and* the fluorinated hydrocarbons *and* propane-butane. All three types have their advantages and can be used separately or in mixtures, dependent on product and application. Aerosol loaders should make objective and independent studies, taking into consideration technical as well as commercial factors, before deciding which type of propellant or propellant-mixture to employ. Their decision may well call for a flexibility in loading practices. The three other gas types referred to above in the discussion of the Rotheim patent, i.e. dimethyl ether, methyl chloride and methyl nitrate, are *not* approved for aerosols by the German Compressed Gas Industry Association and also, because of their very low MAK values, can be excluded as suitable aerosol propellants.

The "ideal" aerosol package is already well known and accepted in Germany and other European countries. Programs are under way to double or triple present production, and this goal is forseeable in the near future. The development of the compressed-gas pressure package, however, is quite new and with the po-

sible exception of the foam products, requires quite a bit of research and study. Essentially, the pressure package differs from the "ideal" aerosol in the small quantity of gas used as propellant, a factor that should mean a lower propellant energy cost, which, in turn, should mean lower product end prices. Only the future can show the extent to which this new pressure package will find acceptance in Europe. Whether the current scepticism will in time disappear seems to depend not only on how the technical difficulties are overcome, but also on the buying habits and tastes of the European consumers.★

Aerosols in Review

(*Continued from Page* 37)

France(2), and England, with other countries undoubtedly still to be heard from. What does all this add up to? We are afraid the true purpose and function of an industry trade association has somewhere gotten lost along a road served principally by private interests and personal egos, an energy impetus which, if permitted to go its unobstructed way, can do infinitely more damage than it can do good — for either the individuals concerned or the industry as a whole. The moment you get more than one association claiming to represent the industry, you get personal claims that one association is 'better' than another. From this point on industry interests tend to be set aside."

The periodical quotes the article by Frederick G. Lodes, of Lodes Aerosol Consultants, on the subject (*Aerosol Age* for June, 1958) pointing out that the current situation in Europe is similar to one that could exist here if "the U. S. were divided into four or more separate geographic parts: Northeast, Southeast, Central, South Central and West, with each district having its own aerosol trade association.

"The Northeast section would be probably dominated by loaders and valve manufacturers in Bridgeport, the Central section by loaders and equipment manufacturers in Chicago, and the Western section by loaders along the Pacific Coast. Here and there a propellant manufacturer, dependent on his location, would raise an independent voice. The net result would be the kind of chaos now existing on the European scene — all because of the geographical placement of a few rivers and mountains plus a few hundred years of wars!

"Language plays a relatively unimportant part. If any European thinks that the same language is spoken throughout the U. S., he is mistaken. Basically, it is all English, but as different in intonation, accent and occasionally meaning as that found among its progenitors in England, Scotland, Wales, and Ireland.

"Essentially, this is the gist of the Lodes report to which we heartily subscribe. We see no more basic reason why East, West, and South Switzerland, because they happen to speak three different languages (German, French, and Italian) should have three separate aerosol trade associations than why there should be an equal number in England, France, and Germany (with several on the fringes because of an added number of dialects). In each country the cans are filled on the same machines, capped with the same valves, and loaded with the same products. They are also sold through the same outlets to the same kind of people!★

Aerosols in Surgery

(*Continued from Page* 21)

and removal of the bone flap. Six cases were spinal operations for prolapsed intervertebral disk, and their infections required reopening of the wounds, drainage, and secondary suture. In addition, six craniectomy wounds were infected. The remaining infection occurred in a young man in whom cranioplasty had been carried out using an autogenous bone flap, and the graft had to be removed. There were three cases of minor sepsis (stitch abscesses) which responded to simple measures of local treatment.

"It should be added that the incidence of infection quoted in this

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control series, though sufficiently distressing, did not represent a particularly black period. While the surgical infection rate has varied, the series quoted is approximately average for the past two years. This incidence of infection persisted despite continual efforts by experienced surgeons to control it by other known means — for example, renovation of ventilation systems, revision of skin preparation technique, the checking of sterilizer efficiency, etc."

Dr. Gibson acknowledges that other factors may have had a bearing on the incidence of the infection, such as crowded ward conditions in the particular surgical department, proximity of the operating theatre to ward accommodation, etc., but declares conclusively: "Be this as it may, the introduction of the polybactrin aerosol technique has abruptly and convincingly reduced the incidence of surgical infections.

"No systemic toxic effects, no delay in wound healing, and no local toxic effects upon the brain, spinal cord, or nerves have been observed. As it was not possible to avoid surgically important infection in 7.2% of elective operations by all other known precautions, it is proposed to continue the employment of polybactrin aerosol technique in the department in question."

So far as can be determined from an examination of past literature, this *British Journal* article is the most substantially documented of any study on the advantages of use of aerosol sprays in surgery.★

•

London Exhibition Held

Safca Aerosols, a leading British filler, is one of four companies that have set up a permanent display at the Packaging Centre at 50 Poland Street, London W.1, England. The three other companies, which with Safca, are all part of the Commercial Plastics Group of Companies, include Anglo- American Plastics, Iridon Ltd., and Greenwich Plastics.

The Safca exhibit shows the contract filling facilities of the companies and includes a special display on the Safca aerosol valve.

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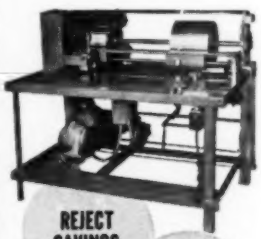

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New Aerosol Patents

Listed below is a brief review of recent patents pertinent to the aerosol and related industries.

Complete copies of these patents may be obtained by writing to the publisher of this magazine, Aerosol Publications, Box 31, Caldwell, N. J., and remitting 50c for each copy desired. For orders received outside of the United States the cost will be $1.00 per copy.

2,840,965. Machines for Inserting Filled Containers Into Cases. Issued July 1 to Stephen John Lewis, Brooklyn, N. Y.

Container pick-up and carrying means for the purposes set forth, comprising tongs of the lever-grip type, endless conveyor means on which said tongs are pivotally suspended for gravity-induced self-closing action, means for presenting a container to be cased at a pick-up point in the path of travel of said tongs, and means adapted to prevent gravity closing action as the tongs respectively approach the container and to release said tongs as they come into embracing relation to the container at said pick-up point, to permit gravity closing of said tongs upon said container as they start to move away from the pick-up point.

•

2,841,313. Self Venting Dispensing Spout. Issued July 1 to Richard W. Beall, Jr. Hermosa Beach, Calif.

An automatic sealing and self-venting device for use on a container to dispense liquid therefrom including: a first tubular liquid discharge member that has a plurality of circumferentially spaced longitudinally extending slots formed therein which terminate in transverse slot extensions; a mounting member for maintaining said first means in a liquid dischargeable position with said container interior; a second tubular liquid discharge member longitudinally movable in said first discharge member; liquid sealing means mounted on said second member, which sealing means is adapted to effect a liquid-tight seal with said first member when said second member occupies a first predetermined position relative to said first member; a plurality of circumferentially spaced transversely disposed arms mounted on said first member that are movably mounted in said slots and slot extensions, with said arms being capable of partial rotation to engage said extensions and maintain said second member at a second predetermined position where said sealing means does not effect a liquid seal with said first discharge member; an air vent member mounted on said second discharge means, which air vent member only establishes communication between the interior and exterior of said container when said second discharge means is not in said first predetermined position; and spring means that at all times tend to maintain said second discharge means in said first predetermined position.

2,845,203. Filling and Sealing Device. Issued July 29 to Norman Potash, Baltimore.

A filling and dispensing valve for pressurized containers comprising an upper body portion and a lower valve portion connected by an intermediate necked portion, said necked portion being axially extensible and of lesser diameter than both said body and valve portions, said necked portion having radial openings therethrough and said body and necked portions having an axial opening connecting with said radial openings.

•

2,844,930. Carton Closing Apparatus. Issued July 29 to Iver L. Nelson, Minneapolis, assignor to Waldorf Paper Products Co., Ramsey County, Minn., a corporation of Minnesota.

An apparatus for closing a carton having a hinged cover provided with a locking tab, and a front wall including a locking slot, the apparatus including a carton conveyor, means engageable with said cover for folding the cover downwardly, a projectable and retraction member movable with said

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carton inwardly of said locking tab, means engageable with said tab as it moves on said conveyor for folding said tab over said projection, means movable with said conveyor engaging said tab on opposite sides of said projection for bending the side edges of the tab toward said carton front wall and into said locking slot and means for retracting said projectable means when the side edges of said tab extend through said slot.

•

Packaging Award Date Set

Roger V. Wilson, Continental Can Co., chairman of the Awards Committee of the Packaging Institute, will present the coveted Corporate Award of the Packaging Institute and the Institute's Professional Award at the 20th annual National Packaging Forum of the Packaging Institute to be held in Chicago.

This year, the Packaging Institute brings its three-day Annual National Packaging Forum to the Edgewater Beach Hotel for October 13-15.

The awards dinner is scheduled for Tuesday evening, October 14th in the Grand Ballroom of the Edgewater Beach Hotel. "It is fully intended," said Mr. Wilson, "that the Corporate Award and the Professional Award of the Packaging Institute shall constitute the highest honors for technical achievement in packaging that can be conferred upon companies or individuals in this country."

•

Breck Names Denmark Agent

John H. Breck, Inc., Springfield, Mass, has announced that distribution of the firm's products in Denmark for professional use and beauty shop retailing will be undertaken by Messrs. Brdr. Tjellesen, Copenhagen.

W. Alec Jordan

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Trade Mark Applications

Applications for registration of the following trademarks were published in recent issues of the *Official Gazette* of the U. S. Patent Office. In not all cases are there strictly aerosol trademarks, however many of the products listed below come within the category of those for which a possible future use in aerosols is foreseen.

SPRING AIR, for household deodorant. Filed Dec. 3 by Trager Manufacturing Co., Scranton, Pa., with first use July 1 of 1953.

ODOR-OFF, in outline letters, for chemical preparation used as a disinfectant-deodorant, packaged in an aerosol bomb-type container. Filed Dec. 12, 1956 by Whitmire Research Laboratories, Inc., St. Louis, claiming first use April 16 of same year.

RED SATIN and GOLD SATIN, for perfume, cologne, bath powder, and bath oil. Both filed July 12, 1956 claiming use for the first on or about March 31, 1954, and for the second, on or about Dec. 31, 1950.

WHITE SATIN and BLACK SATIN, for perfume, cologne, bath powder, and bath oil. Both filed July 12, 1956 with first use for the first on or about Feb. 28, 1949, and for the second, on or about Oct. 31, 1946.

TIP TOE, for liniment in spray form for tired and aching feet. Filed Oct. 31, 1957 by Schueler & Co., New York, with first use claimed for Oct. 15 of same year.

POWDAIR, for medicated sprayable materials and compositions to prevent chafing under trusses and orthopedic appliances and to detackify surgical rubber latex items. Filed June 21, 1957 by Schueler & Co., New York, claiming first use June 3 of same year.

PRESS-N-SPRAY, FOR ENAMELS, Filed March 5 by W. W. Lawrence & Co., Pittsburgh, with first use Feb. 25 of this year.

MI-D-STROY, for insect spray. Filed Nov. 22, 1957 by Lehman Bros., Cleveland, with first use claimed for Dec. 3, 1953.

SPRAHALANT, for nasal spray. Filed Feb. 10, 1958 by Cramer Chemical Co., Gardner, Kans. claiming first use Aug. 5 of last year.

SPRAY-ALTREX, for alkaline cleaning compound. Filed Jan. 13, 1958 by Wyandotte Chemicals Corp., Wyandotte, Mich. with first use Aug. 28, 1956.

PRINCESS HOUSE, for household deodorant. Filed Sept. 23, 1957 by Phoenix Closet Accessories, Inc., New York, claiming first use Aug. 1 of same year.

TENDER SPRAY, for meat tenderizer in liquid form. Filed Jan. 30, 1958 by Heublein, Inc., Hartford, Conn., with first use since Dec. 3 of last year.

NEUTROLAIR, for deodorants for industrial use. Filed Oct. 29, 1957 by Fritzsche Brothers Inc., New York, claiming first use Oct. 17 of same year.

BLOX, for insect repellent lotion. Filed June 27, 1957 by Aids, Inc., Palm Beach, Fla., with first use reported as Oct. 10, 1956.

DOTS N' SPOTS, for multi-color liquid organic coatings such as paints, lacquers, etc. Filed Feb. 10, 1958 by Zolatone Process Inc., d.b.a. Scientific Coatings Co., Los Angeles, Calif., claiming first use Oct. 2, 1957.

PURE AIR, for household spray deodorant. Filed Oct. 1, 1956 by M'Lady Inc., d.b.a. Barde Manufacturing Co., Tuscaloosa, Ala., claiming first use Jan. 6, 1954.

E.S.I.-KLEEN KLEER, for cleaning preperation for use on television tubes, chrome, windshields, windows, walls, tiles, mirrors, refrigerators, porcelain, plastic, and kitchen cabinets. Filed Aug. 12, 1957 by Electronic Solvents, Inc., East Orange, N. J., with first use July 1 of same year.

•

Professor Cox Dies

Professor Cyrus L. Cox, pharmaceutical researcher and professor emeritus of the Rutgers University College of Pharmacy, died recently. A member of the Rutgers faculty from 1928 to 1955, when he retired, Professor Cox devised a method of decolorizing bentonite, a suspensing agent widely used in pharmaceutical and cosmetic preparations. He also wrote many research papers on emulsions and on pharmaceutical dosage forms.

•

Croda Moves Offices

Croda, Inc., New York supplier of lanolin and related cosmetic, pharmaceutical, and industrial raw materials to the aerosol industry, has announced a move to new and larger offices on the 18th floor of the same building as its former offices. The company's address will continue to be 15 E. 26th Street, New York 10.

•

Waugh Marks 25th Year

Theodore Waugh of the aerosol laboratories of Fritzsche Brothers, Inc., New York, who completed 25 years of service with the essential oil and chemical firm on July 19, has been elevated to membership in the exclusive Fritzsche "Quarter-of-a-Century Club."

At a luncheon in his honor, Mr. Waugh was presented with a Government bond and an engrossed scroll, gifts of the officers and board of directors, together with a gold wrist watch, appropriately engraved, from the firm's employees. He is the 73rd Fritzsche employee to be so honored.

Index to Advertisers ▸ ▸ September 1958

—A—

Action Plastics Inc.....Aug.
Aero-Matic Laboratories .....July
Aerosol Corp. of the South..... 57
Aerosol Methods 59
Aerosol Research Co..... 3
Aerosol Service AG.....Aug.
Aerosol Techniques, Inc..... 59
American Can Co..... 29
American Plastics Co..... 65
Anchor Plastics Co., Inc..... 55
Armstrong Laboratories .....Aug.
Associated Brands, Inc..... 60

—B—

Baltic Chemical Co..... 65
Barr, G., & Co.....46, 57
Builder's Sheet Metal Works, Inc. 50

—C—

Chase Products 57
Chemical Insecticide Co..... 54
Cleveland Aerosol Pkg. Corp..... 57
Continental Can Co..... 35
Continental Filling Corp.....41, 57
Croda, Inc. .....Aug.
Crown Cork & Seal Co..... 6
Colton Co., Arthur.....July

—D—

Dow Chemical Co.....Aug.
Druk-Pak, Inc. 52
du Pont de Nemours Co., E. I. 27, 42

—E, F—

Eastern Cap & Closure Co.....Aug.
Evans Research & Development Corp. 63
Eveready Products, Inc..... 57
Fairfield Chemical Div..... 7
Felton Chemical Co.....Aug.
Florasynth Laboratories, Inc.... 50
Fluid Chemical Co..... 59
Foresman, Robert A., Jr..... 54
Fritzsche Bros. 45
Fuld Brothers, Inc..... 67

—G—

Gard Industries, Inc..... 58
General Chemical Division Allied Chemical Corp..... 31
Gilbert Plastics, Inc..... 13
Gillette Safety Razor Co..... 65
Givaudan-Delawanna, Inc. .....Aug.

—H, I, J—

Hope Machine Co..... 62
IKI Manufacturing Co..... 58
Industrial Marking Equipment... 62
JG Machine Works.....Aug.

—K, L—

Karl Kiefer Co..... 32
Kiwi Coders Corp..... 52
KLM-Royal Dutch Airlines..... 48
Lewis-Harwood Co. 54

—M—

Magnus, Mabee & Reynard, Inc. 2nd Cover
McLaughlin Gormley King Co...Aug.
Monsen Refrigeration 44

—N—

National Spray Can Filling Corp. 61
Newman-Green, Inc. 11
Norda 12

—O—

Ohio Chemical & Surgical Equip. Co. .....Aug.
Oil Equipment Laboratories.....Aug.
Old Empire, Inc..... 61

—P—

Par Industries, Inc..... 57
Penick & Co., S. B..... 10
Pennsalt Chemicals Corp..... 14
Peterson Filling & Packaging Co. 3rd Cover, 57
Pfizer, Chas., & Co.....Aug.
Polak & Schwarz Inc.....Aug.
Powr-Pak, Inc. 60
Precision Valve Corp..... 9
Prentiss Drug & Chemical Co... 4
Puritan Distributing Co. Aerosol Filling Division..... 61

—R—

Red Devil Chemicals, Inc..... 62
Risdon Mfg. Co.....4th Cover
Rommel, Allwine & Rommel.... 63

—S—

Schimmel & Co.....Aug.
Solvay Process Division Allied Chemical Corp..... 25
Southeastern Aerosols 57
Stalfort Pressure-Pak 60
Sun-Lac, Inc. 53, 59

—T—

Thomasson of Pa., Inc..... 60
Texas Aerosol Co..... 57
Tube Manifold Corp.....Aug.

—U, V, W—

Union Carbide Chemicals Co...38, 39
van Ameringen-Haebler, Inc.....Aug.
Western Filling Corp..... 57
S.S. White Dental Mfg. Co..... 52
Wisc. Alumni Res. Foundation.. 63

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OVER THE TRANSOM

Toothpaste filling activity, which had been booming, has suddenly slackened off somewhat. This has been due mainly to the fact that marketers who have been rushing to fill the shelves of the tens of thousands of retail outlets throughout the country (a demand that has largely been met), now must sit back and wait out the effects of their advertising campaigns. Also, in anticipation of a quick conversion from collapsible tube to aerosol buying, some marketers may have over-produced their aerosol toothpaste lines. With proper consumer education, and enough advertising we think the boom can go all year for many years to come.

* * *

As a leading candidate for the most unique use for an aerosol, we'd like to nominate the father of one of our editors. Suspecting that bats had invaded a closed space under the eaves of his roof, he mounted a ladder armed only with an aerosol insecticide. He sprayed the insecticide into the bats' suspected points of entry, four small two-inch holes along the edge of the roof. Almost immediately, the air was filled with about 75 of the flying creatures, the insecticide apparently acting as an irritant (and may even have deloused the bats on the way out). The next move was to block the entrances. Results, quick and neat elimination of the bats—without a costly extermination job.

* * *

The board of directors of the Toilet Goods Association recently authorized investigation into methods for determining the safety of those aerosol preparations subject to inhalation. The move came as the result of the recent article in the *New England Journal of Medicine* (and the subsequent scare stories in daily newspapers all over the world).

* * *

A visitor to the offices of Aerosol Age was L. W. Mueller, of Parco (A/Sia) Ptd., the leading Australian custom filler. Mr. Mueller has been on an extensive tour of aerosol plants in Europe and the U.S., and gave us much news about the industries in most of the leading aerosol countries. He tells us that the Australian industry, which has been healthy from the beginning, will have a highly successful year in '58.

* * *

From a journalistic standpoint, the recently completed Colgate-Carter court suit had an interesting sidelight. The publicity release from Carter Products, claiming a clear-cut victory for the maker of "Rise," appeared in the Metropolitan press (*The New York Herald-Tribune*) first. A few days later Colgate's public relations department got out a release claiming victory for Colgate on the basic issues in the suit. From all we've been able to gather, the fundamental points (whether or not the Spitzer patent covers shaving cream pressurized with butane-propane mixtures) were decided in favor of Colgate, and that company will be permitted to package such products without paying royalties on Carter's patent. Carter won a smaller victory, since it received treble damages from Colgate for the 1.6 million cans pressurized under the older formulation, in which fluorinated hydrocarbons were used as propellants.

* * *

The British seem to have the faculty for developing the most ingenious aerosols. A few months ago there appeared a product called "Q Pig"; object: to prevent fighting among pigs from mixed litters when they are placed in one pin. This month comes word that Ozonair Engineering Co., Ltd., Rochester (Kent) has developed a spray container that applies a special adhesive solution onto the filter medium of air filter panels that need renewing. For news of other British aerosol developments of the more unique variety, see the "Aerosols in Review" column in this issue, and the article about "Polybactrin's" use in surgery (page 20).

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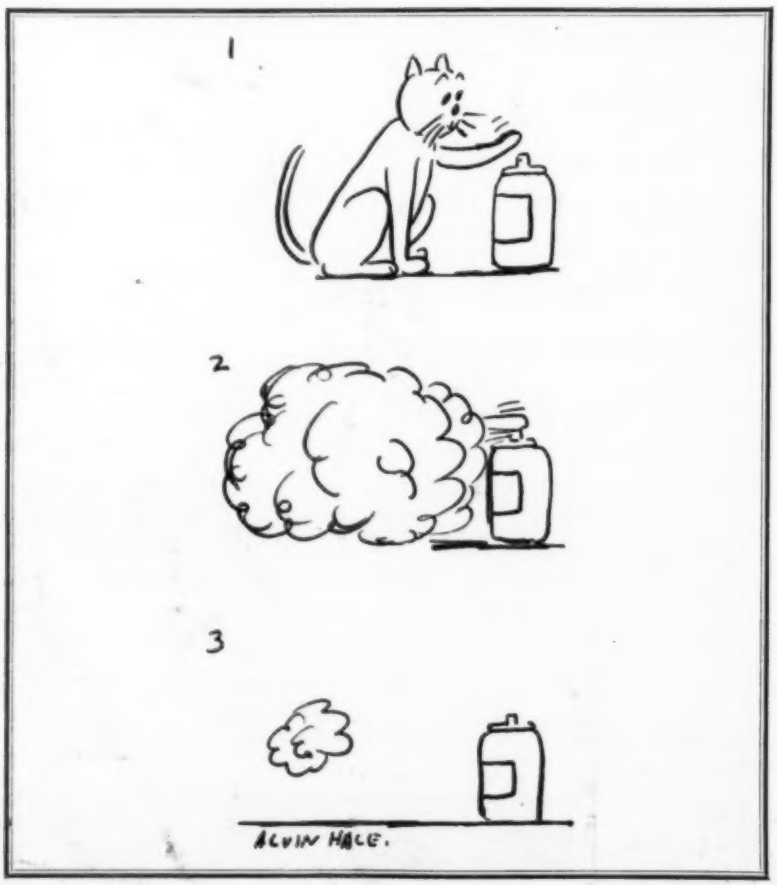
Look for aerosol-packaged whiskies and other "tonics" to appear at the CSMA convention in December. Nitrogen-powered packages, of both the metered and non-metered types, have been developed in a number of laboratories throughout the industry, and several companies, it is rumored, will have them ready for use in hospitality suites, come December.